מרכז ארצי לבחינות ולהערכה (ע"ר)
NATIONAL INSTITUTE FOR TESTING & EVALUATION
المركز القطري للامتحانات والتّقييم
מיסודן של האוניברסיטאות בישראל

INTER-UNIVERSITY PSYCHOMETRIC ENTRANCE TEST

GUIDE FOR EXAMINEES

INCLUDING PRACTICE TEST 5E

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WHAT IS THE PURPOSE OF THE GUIDE?

The Guide for Examinees (hereafter, the Guide) is designed to provide you with all the necessary information about the Inter-University Psychometric Entrance Test so that you can familiarize yourself with the test format and procedure. This will enable you to prepare for the test in the best and most reliable way possible. The Guide contains general explanations about all aspects of the test, as well as sample questions with answers and explanations. It also includes a complete practice test and instructions for calculating an estimate of your score for each of the areas that comprise the test as well as an estimate of your total test score.

Every effort has been made to include as broad a variety as possible of the types of questions appearing on the test, along with the relevant instructions. Occasionally, however, there may be new types of questions on the test. In addition, changes may be made in some of the test instructions, the number of questions contained in a test section or the amount of time allotted for solving the questions. Nonetheless, the Guide still covers the vast majority of the material included in the test.

Read the *Guide* carefully, solve the sample questions,
and take the practice test.

WHAT IS THE PSYCHOMETRIC ENTRANCE TEST?

The Inter-University Psychometric Entrance Test (PET) is a tool for predicting academic performance, used for selecting applicants to institutes of higher learning. The test enables all applicants to be ranked on a uniform scale and, relative to other selection tools, is less affected by differences in applicants' backgrounds or other subjective factors.

The Psychometric Test is not a perfect selection tool. It is generally able to predict academic success; however, there may be a small number of examinees who do not do well on the test and yet are successful in their studies, and vice versa. Neither is the test a direct measure of such factors as motivation, creativity, and diligence, which are definitely related to academic success. It should be noted that some of these elements are measured indirectly, both on the Psychometric Test and also on the Matriculation Exams.

The Psychometric Test offers a second chance to many students with great potential who, for various reasons, were not given the opportunity to fully demonstrate their abilities in their high school studies. In addition, since it is translated into several languages, the Psychometric Test is able to serve as a standardized selection tool for candidates who are not Hebrew speakers or who do not have an Israeli matriculation certificate.

There is a large body of research which demonstrates the high predictive ability of the Psychometric Test. This means that students with high Psychometric Test scores can generally be expected to do better in their academic studies than students with low scores. In addition, of all the different combinations of selection tools available, the Psychometric Test combined with the Matriculation Exams has proven to have the best predictive ability.

HOW TO REGISTER FOR THE TEST

To register for the Psychometric Test, fill out the registration form and send it directly to the offices of the National Institute for Testing and Evaluation (NITE). You do not have to apply to any educational institution in order to be tested. Even if you are applying to several institutions, you need take the test only once, and your scores will be forwarded to all of the institutions that you request.

The Psychometric Test is administered several times a year throughout Israel and in a number of locations overseas, and it can be taken in several languages. Test scores are valid for acceptance to university for at least seven years. Since test scores are computed on a uniform scale, **differences in administration dates, languages and versions of the test do not affect your score**. Therefore, if you took the test at a time when, for some reason, the performance level of examinees was higher than average, the scoring method ensures that your score will not be any different from the one you would have obtained had you taken the test at any other time.

A leaflet entitled *Registration Procedures* is included with the registration form. It provides detailed information about the procedures related to the test, including:

- **the institutions requiring the test**
- **test administration dates and registration deadlines**
- **the languages in which the test is given**
- **test locations**
- **the procedure for registering for and information about special testing accommodations for applicants who have either physical or learning disabilities or any other problem that may make it difficult for them to be tested or to reach the test location**
- **conditions for changing or canceling registration**
- **the procedure for late registration**

TEST FORMAT

THE TEST SECTIONS

The Psychometric Entrance Test consists of eight sections. Each section begins with information about the number of questions in the section and the time allotted for answering them. Each section tests one of the following three areas – verbal reasoning, quantitative reasoning, and English. All sections consist of multiple-choice questions for which you must choose the response which best answers the question from among four alternatives.

The three areas test abilities necessary for successful academic performance, namely:

VERBAL REASONING

The **verbal reasoning** sections test verbal abilities that are used in all academic studies: vocabulary, logical thought processes, the ability to analyze and understand complex passages, and the ability to think clearly and methodically.

QUANTITATIVE REASONING

The **quantitative reasoning** sections test ability to use numbers and mathematical concepts for solving quantitative problems, as well as ability to analyze data presented in a variety of formats, such as tables or graphs.

ENGLISH

The **English** sections test proficiency in the English language in terms of, among other things, vocabulary and the ability to read and understand passages on an academic level.

The sections in each test area consist of several different types of questions. All questions of a given type appear together and are arranged in ascending order of difficulty, with the exception of reading comprehension questions (in the verbal reasoning and English sections), which are arranged according to the order in which the subject matter appears in the passage. The order in which the test sections in the three areas appear may vary from one test to another.

HOW THE TEST SECTIONS ARE USED

Only two test sections in each area are used for calculating your score. The sections not used for calculating your score serve two purposes:

To equate tests administered on different dates
In order to set the scores of tests administered on different dates on the same scale, the test you take may contain a section which has already appeared on a previous test. Tests must be comparable in order to avoid a situation whereby your score is affected by differences in the levels of the examinees tested on different administration dates.

To ensure the quality of the questions
Before a question appears in a section that is used for scoring purposes, it undergoes various tests to ensure quality, that is, to ensure that it is fair and that it distinguishes between examinees with greater ability and those with lesser ability. Sections not used for scoring purposes may consist of questions that are at this quality-testing stage. Questions that pass statistical and other tests may appear in the future in sections that are used for scoring purposes, while poor questions are disqualified. The sections on your test that will be used for calculating your score were constructed in this manner.

The sections not used for calculating the score are essential. They prevent distortion of the score which might be caused by differences between tests administered on different dates, and they ensure that the questions on the test are good and fair. There is no way for examinees to distinguish between the sections used for scoring and the other sections. Therefore, for your own good, **treat every section of the test with equal gravity.**

HEBREW PROFICIENCY TEST (*YAEL*)

The Hebrew Proficiency Test evaluates the Hebrew language proficiency of examinees taking the Psychometric Test in languages other than Hebrew. Some universities use this test to place students in appropriate Hebrew language courses; for some, it is also an entrance requirement. The score on this test is not part of the Psychometric Test score, and it is sent separately to the educational institutions.

Different educational institutions use this score in different ways; some may require applicants to take an additional Hebrew exam. If you wish to improve your score on the Hebrew Proficiency Test, you may retake it independently of the Psychometric Test. This requires re-registering. Further details are available from the admissions offices of the individual educational institutions.

The Guide contains sample questions and a practice test to help you to become acquainted with the types of questions that may appear on the Hebrew Proficiency Test.

PREPARING FOR THE PSYCHOMETRIC TEST

The skills that the Psychometric Test evaluates develop gradually over a period of years. School, reading, hobbies and other interests all contribute to your verbal and quantitative skills and to your command of English. Thus, you have already done most of the preparation for the test over the course of your elementary and high school studies and through the various experiences you have had. Although the best preparation is one of gradual work over a period of many years, concentrated practice before the test can improve your test performance. Take into account that in those areas in which proficiency develops slowly (such as Hebrew and English vocabulary), practicing for a short time is unlikely to be of significant help, but in other areas it can definitely be beneficial.

There are a number of things you can do in the short term to prepare for the test:

Read the Guide carefully.

The Psychometric Test, like any other test, may cause some anxiety, which could affect the way you function during the test. Since some of this anxiety results from lack of familiarity with the test, the better acquainted you become with the test format and procedure and the types of questions which appear on it, the less anxious you will feel and the better you will be able to perform on the test. Therefore, read the Guide carefully. The information it contains will help you familiarize yourself ahead of time with the test, and prevent unnecessary surprises.

Familiarize yourself with the instructions.

The Guide contains the instructions which appear at the beginning of each section of the test, as well as the instructions which appear before each type of question. You will find these instructions in the chapters containing examples and explanations, and also in the practice test at the end of the Guide. Study the instructions carefully. By familiarizing yourself with them ahead of time, you will be able to devote less time to them during the test.

Answer the sample questions.

For each area of the test there is a chapter in the Guide with examples of the various types of questions together with explanations. Answer the sample questions and read the explanations carefully. The more familiar you become with the format of the questions on the test, the more comfortable you will feel when actually taking the test.

Take the practice test.

At the end of the Guide you will find an actual Psychometric Test for self testing. This practice test appears exactly as it did when it was administered to examinees, except that it contains only the six sections used for calculating the score. Answer the questions under conditions as similar as possible to those you will encounter during the test itself:

- Keep within the time limits. Do each section in the amount of time allotted for it, because when actually taking the test, you will not be allowed any extra time.
- Mark your answers on the accompanying answer sheet and not in the test booklet. Marking the answers takes up test time, and it is therefore important to practice it in advance.

  At the end of the practice tests there are instructions for calculating an estimate of your score, to help you evaluate your test performance.

Studies conducted at the National Institute for Testing and Evaluation show a very high correlation between scores on the practice test and those on the actual Psychometric Test. Nonetheless, performance on each test may be affected by factors such as motivation, anxiety, and differences in testing conditions. Therefore, differences are to be expected between the scores obtained on the practice test and the scores obtained on the Psychometric Entrance Test itself, just as they are to be expected when retaking tests of the same type.

You can get additional practice by using the set of practice tests published by the National Institute for Testing and Evaluation. The set consists of three actual Psychometric Tests that were administered in English in recent years, thus providing you with a reliable, comprehensive way of practicing for the test.

Practicing on tests in Hebrew can also be beneficial. The National Institute for Testing and Evaluation has published a set of six practice tests **in Hebrew**, called ***Psychometry Mikol Habechinot***. The set also comes with the CD ***Compumetry*** – a computerized, interactive version of the Psychometric Test which is less time-consuming and which also provides an estimate of the score the user can expect to receive on the test. The set can be purchased at all university bookstores, certain general bookstores, or directly from the National Institute for Testing and Evaluation.

Taking a real Psychometric Test is in itself an effective form of practice. If you take the test and are dissatisfied with your score, you can retake it. (See the *Registration Procedures* leaflet for details.)

Additional methods of preparation: independent study, books, and courses

There are many ways to study English or refresh your knowledge of mathematics: independent study, private lessons, courses, pre-academic preparatory institutes, and so on. It is up to you to choose the method of preparation most suitable for you, and to decide how much time, effort and money to invest in it.

The National Institute for Testing and Evaluation conducted a study on the effectiveness of different methods of preparation. The study was conducted on thousands of examinees who took the Psychometric Test at least twice, and it compared the score obtained on the most recent test with the score on the previous test. The results showed that the average improvement among examinees who had prepared **on their own** was approximately 30 points (on a scale of 200-800).

This is a known statistic that has remained stable over the years. By contrast, examinees who participated in a **preparatory course** achieved an average improvement of approximately 40 points, that is, only about 10 points more than the improvement of examinees who had prepared on their own. Similar results have been obtained from studies conducted in other countries. The obvious conclusion from these results is that the benefit derived from preparatory courses, as compared to self-preparation, is very limited: most of the improvement (30 out of 40 points) is obtained in any event from self-study and from advance familiarity with the different types of questions which appear on the test, which decreases anxiety and improves test performance. It should be noted that the data obtained from the study refer to **averages**. In other words, some examinees improved their scores by a greater number of points and some by a smaller number of points, and some even obtained scores which were lower than those obtained on the first test.

Thorough preparation before the test is certainly beneficial. Just as in school, the best form of preparation is thorough drilling in the subject areas that will appear on the test, rather than learning "tricks." Test developers are aware of such tricks, and take them into account when writing the questions. Choosing a suitable form of preparation is also a matter of personal style: some individuals need a rigid framework and some prefer independent study. In any event, before choosing a preparatory framework, carefully check whether it will provide you with the necessary thorough drilling. Do not rely on unfounded rumors of dramatic improvements achieved by students who took a course, nor on "magic" formulas – there are none! Also, take into account the effort that you will have to invest in a course, in terms of both time and money, compared with the benefit you will derive from it.

SUGGESTIONS AND RECOMMENDATIONS

BEFORE THE TEST

Review the types of questions appearing on the test and the various test instructions.

Prepare everything that you must bring to the test:

Your ID card or passport - You will not be allowed to take the test without one of these documents.
Two No. 2 (HB) pencils, a pencil sharpener and an eraser

It is also recommended that you bring:

- Your test notification slip, to check the exact time and place of the test.
- Food and drink, if you like.
- Suitable clothing – the test hall may be warmer or cooler than you expected.

To avoid arriving late, make sure that you know in advance how to reach your assigned test hall.

You may not bring with you cellular telephones (not even for using as a clock), beepers, beeping watches or watches with calculators, portable music players or any other item that might disturb other examinees.

The test is approximately three and a half hours long. There are no breaks (as soon as the time allotted for one section ends, the next section begins). No visitors are allowed into the test halls during the test, nor may messages be given to examinees.

DURING THE TEST

Study aids are forbidden

You may **not** use calculators, including watch calculators, alarm clocks, dictionaries of any kind, books, paper or any other study aids. If you need scratch paper, you may use only the pages of the test booklet itself.

Read the instructions

Each type of question is preceded by instructions. Although these instructions appear in the Guide, and it is important to familiarize yourself with them in advance to avoid wasting time, do not rely solely on your familiarity with the instructions. Misunderstanding an important instruction might lead to mistakes in all of the questions of that type. Therefore, read the instructions carefully. In addition, the test may contain new instructions that were incorporated after the present edition of the Guide was published. It is also very important that you read carefully the questions themselves and all of the possible responses before choosing the correct answer. Note exactly what is being required of you in each question, and only then answer accordingly.

Mark the answers correctly

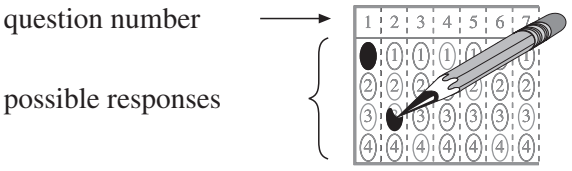
Each question on the test has four possible responses, from which you must choose the best answer. Choose **only one** answer.

The answer sheet for the test is read by an optical scanner which feeds the data directly to a computer. The optical scanner is designed to read marks made by a **No. 2 (HB) pencil**. Therefore, make sure to bring two of these pencils to the test. If you use any other type of pencil, the optical scanner might read your answers incorrectly.

Below is a section of the answer sheet.

Mark your answer by filling in the oval which bears the number of the answer you have chosen, as follows: ●

For example: Let us assume that you are answering question number 2, and you have decided that the correct response is 3. Find the corresponding oval (number 3) in the column for question 2, and fill it in as shown.



Note:

The only correct way to mark an answer is by **filling in the oval completely**. Any other mark – a vertical line, a horizontal line, a circle, etc. – will not be read!

correct  incorrect  incorrect  incorrect 

Fill in **only one oval** for each question. If you fill in more than one oval for a question, your answer will be disqualified even if one of the possible responses you have chosen is correct.

If you want to change an answer that you have already marked, use a clean eraser to erase the incorrect answer, and then mark the answer you think is the correct one. Make sure your previous answer is completely erased; otherwise the optical scanner might read your answer incorrectly.

When you take the practice test at the end of the Guide, mark your answers on the answer sheet appearing at the end of the practice test in order to practice using the answer sheet.

Make sure that each answer is marked in the correct place. If you skip a question in the test booklet, make sure that you skip the corresponding place on the answer sheet. When answering the questions that follow it, always check that the number of the question matches the number of the column in which you are marking your answer.

Note: You alone are responsible for what appears on your answer sheet. It will be read exactly as you filled it in. If you mistakenly marked answers in the wrong place, there is no way to reconstruct what you really intended, and the answer sheet that you filled in incorrectly will determine your score.

Use your time wisely

As mentioned previously, the number of questions included in each section and the time allotted for answering them appear at the beginning of each section. During the test, be aware of the time and try not to spend too much time on each question. Shortly before the end of the time allotted for a section, go back to any questions you may have skipped and make sure that you have answered **all** of the questions. At the end of the allotted time you will be instructed to turn to the next section, and you will no longer be allowed to return to the previous section.

Below are some suggestions for efficient use of the allotted time:

- **Try to answer each question** in a reasonable amount of time. Once you have answered it, go on to the next question.
- If you cannot answer a question, **do not spend too much time on it.** Remember, you must answer all of the questions in the section. If you spend too much time on one question, you will not have enough time to answer the remaining questions, and there are likely to be many other questions which you will be able to answer correctly and receive points for. Easy questions and difficult questions **have equal weight for scoring purposes**. There is therefore no reason to get stuck on one difficult question. In the time that you save, you could answer **several** easier questions.
- If you feel that you know how to answer a question but need a bit more time, **mark it and return to it later.** If you have time at the end of the section, go back to all of the questions that you marked and try to answer them.

- If you feel that you will not be able to answer a question even if you spend more time on it, **guess the answer.** Your guess need not be a random one. You might be able to rule out some of the possible responses on the basis of partial knowledge, thereby increasing your probability of guessing correctly. The test score is calculated on the basis of correct answers only, and no points are deducted for incorrect answers. Therefore, if you are unable to answer a question, it is worthwhile to guess. Guessing cannot harm your score; it can only improve it.
- **Leave yourself a minute before the end of the section.** Randomly guess the answers to all of the questions that you skipped; in other words, mark any answer on the answer sheet without trying to solve the question or rule out possible responses. At this stage there is no time for anything except for quickly filling in the missing answers on the answer sheet.

Every section is important

There is no way for you to tell which sections will not be used for calculating your score. Therefore, treat every section as if it determines your score. Deciding, for whatever reason, that a particular section is not important could badly hurt your score.

Cheating on the test

Any kind of cheating, such as copying or posing as someone else, interferes with fair admissions procedures.

The National Institute for Testing and Evaluation has ways of detecting cheating. NITE can refuse to test someone or disqualify his test if he commits an offense related to the test's confidentiality or its results. Impersonation (such as sending someone else to be tested for you) is a criminal offense. If someone is suspected of committing such an offense, a complaint will be filed with the police and with the university disciplinary committees. The impostor and the person who sent him risk imprisonment and being barred from studies for an extended period of time. Thus, any attempt to act in an unethical manner is liable, in the end, to cause the examinee far greater harm than a few incorrect answers.

The National Institute for Testing and Evaluation reserves the right to disqualify an examinee's test should any suspicion or doubt arise as to whether the examinee's test performance accurately reflects his ability.

It is strictly forbidden to copy, distribute, or teach the contents of a test or any part of it, in any form or by any means, without written permission from the National Institute for Testing and Evaluation. NITE will take administrative, judicial, or other appropriate action against anyone violating this prohibition. Before the test begins, you will be asked to sign a declaration stating that you are aware of this prohibition and that you undertake to behave in accordance with it.

Any of the following constitutes grounds for disqualifying an examinee:

- Disruptive behavior
- Copying, giving or receiving help in answering a question
- Using forbidden study aids, such as papers, books, calculators or dictionaries
- Turning to another section without being instructed to do so
- Continuing to work on a section after the end of the allotted time
- Taking test material out of the test hall

AFTER THE TEST

After completing the test you will receive a **Feedback Questionnaire** in which you will be asked your opinion about the testing conditions. You may also be asked to rate your satisfaction with the registration procedure and the test, or to express your opinion on other areas that NITE deals with. The feedback questionnaire is not part of the Psychometric Test; it is reviewed separately from the test answer sheets, and it **cannot** in any way affect you or your test score. Answering the questionnaire is optional, but we would appreciate your taking the small amount of time needed to do so, as your answers will enable us to improve the service we offer examinees. Please note that the feedback questionnaire is not designed for dealing with individual complaints. If you have any questions or complaints about the test, please address them in writing to the **Public Relations Department** at the National Institute for Testing and Evaluation within one week of the test date. You will receive a personal reply.

Some examinees might leave the test feeling that questions were difficult or worrying that they did not manage to answer all the questions in the allotted time. It is important to understand that even though the score is calculated on the basis of the number of questions answered correctly, it is also equated with the performance of all other examinees on all versions of the test, in all languages, and for all test administrations. Therefore, even if you left the test thinking that you performed poorly, it is still entirely possible that you did well.

TEST RESULTS

CALCULATING THE SCORES

Calculating your score is a three-step process:

a. **Calculating the raw scores:** Each correct answer is worth one point. The total number of correct answers in a section is the raw score for that section.

b. **Calculating the scores for the three parts of the test:** In order to make it possible to equate the scores of examinees who were tested on different versions of the test, in different languages, and on different test administration dates, the raw scores in each of the three areas are converted to a uniform scale. **The scale of the scores in each of the three areas ranges from 50 to 150 points.**

c. **Calculating the total Psychometric Test score:** The total Psychometric Test score is based on a weighted average, with the scores in quantitative reasoning and verbal reasoning receiving twice the weight of the score in English.
The scale of the total psychometric score ranges from 200 to 800 points.

The method for calculating the score appears at the end of the Guide, after the practice test.

THE MEANING OF THE SCORE

The test has no "pass" or "fail" score. The decision to accept or reject a candidate is made by the educational institutions. Each department arranges its applicants on a scale according to their acceptance scores, ranging from the applicant with the highest acceptance score to the applicant with the lowest acceptance score. A **cut-off point** is then determined. Applicants whose scores are above the cut-off point are accepted; those whose scores are below the cut-off point are rejected. The position of the cut-off point on the scale depends on three factors: the number of available places, the number of applicants, and their scores. The greater the number of applicants relative to the number of

available places, and the higher their scores, the higher the cut-off point. Each year, the educational institutions calculate new cut-off points for every field of study; the cut-off points differ from one educational institution to another and from one year to the next.

SUMMONS FOR RETESTING

When the Psychometric Tests are evaluated, certain checks are routinely performed to ensure that an examinee's score accurately reflects his ability. In certain cases, NITE may encounter difficulties in evaluating a test score, for example, because of irregular or inconsistent findings on the test, or because of technical problems. If, at any time, doubt arises as to a test's reliability, for any test administration and for whatever reason, including the reasons mentioned above, the examinee is summoned for retesting at NITE offices in Jerusalem and, where relevant, his test score is frozen until the matter is clarified. Only after the examinee is retested will NITE make a decision regarding further processing of the test. Generally, a summons for retesting is sent in writing to the relevant examinees within six weeks of when the test was taken, but it may also be issued at a later date.

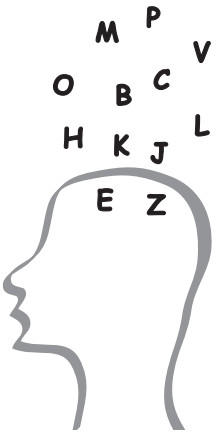
REPORTING TEST RESULTS

Test results are mailed to you. They can also be viewed on **NITE's website – http://www.nite.org.il** – after you enter your personal data. Test results are forwarded at the same time to all of the educational institutions to which you requested that they be sent. The test report contains the following information:

a. **The scores in the three parts of the test** – verbal reasoning, quantitative reasoning and English.

b. **The total Psychometric Test score** – based on the weighted scores in the three parts of the test.

A leaflet explaining the test scores is included with the test report. Under no circumstances are test results given by phone or fax. Questions regarding test scores should be referred to the **Scoring Department** at NITE.



VERBAL REASONING

This part of the test examines verbal abilities necessary for academic studies: vocabulary, logical thought processes, the ability to analyze and understand complex texts, and the ability to think clearly and methodically.

At the beginning of each verbal reasoning section you will find instructions, including information on the number of questions that appear in the section and the amount of time you have in which to answer them. For example:

This section contains 27 questions.
The time allotted is 25 minutes.

This section consists of several types of questions: analogies, sentence completions, logic and reading comprehension. Each question is followed by four possible responses. Choose the one which **best answers the question** and mark its number in the appropriate place on the answer sheet.

- Solving the analogies takes relatively little time. Solving the other types of questions – sentence completions, logic and reading comprehension – generally takes more time. Take this into account in planning the amount of time to devote to each question.
- All questions of a given type are arranged in ascending order of difficulty, that is, the first questions are easier than the last questions, except for the reading comprehension questions, which are arranged in the order in which the subject matter appears in the text.
- For each question, choose the response that best answers the question out of the four possible responses provided. If, at first glance, several responses seem to be correct, read the question and the alternative responses carefully and try to find the most correct answer.

On the following pages you will find several examples of each type of question. Most of the examples are followed by a detailed explanation.

ANALOGIES

Instructions:

Each of the following questions contains a pair of words in bold type. Find the relationship between the meanings of these two words, and then choose from among the possible responses the one in which the relationship between the two words is **most similar** to the relationship you have found.

Note: The order of the words in each pair is significant.

Questions of this type examine your ability to precisely define a connection or relationship between two words and to recognize the similarity between two relationships.

First, define the relationship between the two words in bold type. Then, define the relationship between the pairs of words in each of the possible responses and choose the response in which the relationship is most similar to the relationship between the two words in bold.

Examples and Explanations:

1. baker : eating -

(1) surgeon : anesthesia
(2) author : reading
(3) gardener : watering
(4) policeman : enforcement

The relationship between the words in bold type: **eating** is an activity involving the product of the **baker**'s work.

Response (2) has the same relationship: **reading** is an activity involving the product of the **author**'s work.

The other responses are incorrect: **anesthesia** is a stage that precedes a **surgeon**'s work. **Watering** is one of the jobs of a **gardener**. **Enforcement** is the objective of the **policeman**'s work.

2. to shutter : is closed -

(1) to explain : is understood
(2) to estimate : is exact
(3) to believe : is correct
(4) to permit : is forbidden

The relationship between the words in bold type: **to shutter** something causes it to be **closed**.

Response (1) contains the same relationship: **to explain** something causes it to be **understood**.

The other responses are incorrect: **to estimate** is to make an approximate calculation of something's worth, not an **exact** one; **to believe** something is to think that it is **correct**; **to permit** something means to declare that it is not **forbidden**.

3. deck : fleet -

(1) ruler : country
(2) roof : neighborhood
(3) clothespin : laundry
(4) player : team

The relationship between the words in bold type: a **deck** is the upper part of a ship, and a group of ships makes up a **fleet**.

Response (2) contains the same relationship: a **roof** is the upper part of a house, and a group of houses makes up a **neighborhood**.

The other responses are incorrect: a **ruler** is someone who rules over a **country**. A **clothespin** is a means for hanging **laundry** on a clothesline. A **player** may be part of a **team**.

4. warn : wariness -

(1) distort : truth
(2) provoke : anger
(3) know : proficiency
(4) dissuade : action

The relationship between the words in bold type: to **warn** means to do something that produces **wariness** in someone else.

Response (2) contains the same relationship: to **provoke** means to do something that produces **anger** in someone else.

The other responses are incorrect: to **distort** means to twist the **truth**. To **know** means to have **proficiency**. To **dissuade** means to cause someone to refrain from a particular **action**.

SUMMARY OF ANALOGIES

– Formulate the precise relationship between the words in bold type.
– Formulate the precise relationship between the pairs of words in each of the possible responses and choose the appropriate response.
– The relationship you have defined between the pair of words in bold might not apply to any of the responses. Defining the relationship in more general terms should solve the problem. Sometimes the relationship that you have defined can apply to more than one of the responses. In this case, a more precise definition of the relationship is required.
– Make sure that your solution is based solely on the similarity of the relationship between the words. Do not rely on similarity of form or content between the words in bold and the words in one of the responses.
– Relate only to the meanings of the words. Do not base your choice of response on similarity of sound or appearance in the relationship between the words.
– Pay attention to the order of the words. If you switch the order of the words in bold when defining the relationship between them, make sure that you also switch the order when defining the relationship in each of the possible responses.

SENTENCE COMPLETIONS

Instructions:

In each question, there is a sentence (or sentences) with several parts missing, followed by four possible ways of completing the sentence. Complete each sentence, using the response that is **most appropriate**.

Sentence completion questions test your ability to recognize logical connections between parts of a sentence and to understand what the sentence is saying. Each question consists of a sentence with several parts missing, and each missing part is indicated by a blank. Each of the four possible responses contains several sets of words separated by a slash (/). Insert the sets of words, in the order in which they appear, in place of the blanks. After inserting all of the words, it is important to read the entire sentence. A logical sentence will be formed only if you have inserted the correct sets of words.

The key to solving sentence completions is understanding the logical connections between the parts of the sentence. There are different types of relationships between parts of a sentence: one part might elaborate on what is stated in a different part, or explain it, illustrate it, negate it, offer an opposing opinion, and so on. These relationships can be deduced from the way the sentence is worded and from the punctuation used. Special attention should be paid to conjunctions such as "because," "since," "Therefore," "thus," 'in spite of," "for example," "although." These conjunctions may appear in the question itself or in the sets of words in the possible responses.

The most important consideration in solving sentence completion questions is that there must be an internal logic to the sentence that is created. An answer may appear illogical in terms of the facts that it contains, but if it has its own internal logic, then it is the correct response.

Examples and Explanations:

1. Dead ends never _____ scientific progress. _____ , they were always a factor that induced researchers and thinkers to _____ the commonly held beliefs of their time, _____ a breakthrough.

(1) led to / Indeed / delve into / thus occasionally achieving
(2) interfered with / Indeed / be satisfied with / while abandoning any attempt to achieve
(3) furthered / On the contrary / cling to / thus often achieving
(4) hindered / On the contrary / question / which enabled them to reach

Response (1) is incorrect: It first states that dead ends did not lead to scientific progress, but then goes on to say that breakthroughs were sometimes achieved as a result of dead ends.

Response (2) is incorrect since it first states that dead ends did not interfere with scientific progress, and it then goes on to say that dead ends led to abandoning the attempt to achieve a breakthrough.

Response (3) is also incorrect, since it first states that dead ends did not further scientific progress, while later on saying that they often resulted in a breakthrough.

Response (4) is the correct response. It first states that dead ends did not hinder scientific progress, and the rest of the sentence reinforces this claim: Dead ends always led to questioning what was commonly believed to be true, and motivated researchers and thinkers, which enabled them to reach a breakthrough.

2. Those who disapprove of Juan, a healer, claim that the improvement reported by his patients is due solely to their belief in his healing powers. In the past, I _____ to believe this claim, but I changed my mind after learning that _____ patients who were _____ about the treatment's chances of success reported _____ in their condition following treatment.

(1) was inclined / even / skeptical / an improvement
(2) refused / only / skeptical / an improvement
(3) was inclined / only / confident / an improvement
(4) was inclined / all of the / skeptical / that there was no change

Response (1) is the correct response: The speaker states that, as a result of new information, he is no longer inclined to believe the claim appearing in the first part of the sentence. The new information indeed weakens that claim: If even those patients who were skeptical about the treatment's chances of success reported an improvement in their condition, then there is no validity to the claim that the only reason for the improvement is belief in the treatment.

Response (2) is incorrect since the speaker states that he no longer refuses to believe the claim; in other words, he has decided to believe the claim, but the new information actually weakens the claim.

Responses (3) and (4) are also incorrect since, in both, the speaker decides to reject the claim after receiving information that actually reinforces it.

3. Research shows that laws in biblical times were intended to solve _____ and not to prevent problems that _____ . Thus, if the Bible contains a law that forbids looting, _____ that this _____ in those days.

(1) current problems / might arise in the future / it is unlikely / practice existed
(2) commonplace problems / rarely occurred / it would be difficult to contend / was an everyday occurrence
(3) problems of the future / were widespread / one should not rule out the possibility / was a deep-rooted practice
(4) existing problems / might arise in the future / it would not be unreasonable to argue / was a widespread practice

Response (1) is incorrect because the first sentence says that the purpose of the laws was to solve current problems, and the conclusion in the second sentence is that if the Bible contains a law against looting, then this practice did not exist. This is the opposite of the expected conclusion, based on the first part of the statement.

Response (2) is incorrect because the first sentence says that the laws were intended to solve commonplace problems, while, based on this, the second sentence states that it is not a reasonable assumption that looting was a common practice if a law existed about it. This is the opposite of the conclusion that we would expect, because if the laws dealt with commonplace problems, it would be reasonable to assume that this was an everyday occurrence.

Response (3) is also incorrect, since the first sentence states that the object of the laws was only to solve problems of the future, while the conclusion in the second sentence is that if the Bible contains a law that forbids looting, then it is likely that this was a deep-rooted practice at that time. This is the opposite of the conclusion that we would expect on the basis of the first sentence.

Response (4) is the correct response. The first sentence states that the laws were intended for solving existing problems and not problems that might arise in the future. Based on this statement, the second sentence concludes that if the Bible contains a law forbidding looting, it would be reasonable to assume that looting was widespread at the time, since the laws, as mentioned, reflected an existing situation.

4. _____ that the ability of penguins to survive even under extremely difficult climatic conditions _____ to their ability to survive under all types of environmental conditions. _____ the size of the penguin population _____ following a deterioration in environmental conditions, such as a decrease in the quantity of fish available to them for food.

(1) There is truth in the claim / attests / This is in spite of the fact that / does not change
(2) There is truth in the claim / does not attest / This is because / does not change
(3) There is truth in the claim / does not attest / The proof of this is that / decreases considerably
(4) It would be incorrect to claim / attests / The proof of this is that / decreases considerably

Response (1) is incorrect. The first sentence says that the claim that penguins are capable of surviving under all types of environmental conditions is correct. The second sentence begins with the words "This is in spite of." We would expect the information that follows to be inconsistent with the claim in the first sentence. However, the information that the size of the penguin population does not change following a deterioration in environmental conditions actually is consistent with the claim made in the first sentence.

Response (2) is also incorrect. The first sentence says that the claim that penguins are capable of surviving under all types of environmental conditions is not true. The second sentence begins with the words "This is because." We would expect this to be followed by the reason why the claim is not true. However, the information that follows indicates that penguins are able to survive under difficult environmental conditions.

Response (3) is incorrect because the first sentence says that the claim regarding the ability of penguins to survive is correct, but the second sentence tries to prove this claim by presenting proof that is actually inconsistent with it.

Response (4) is the correct response. The first sentence says that the claim that penguins are capable of surviving under all types of environmental conditions is incorrect; as proof, the second sentence states that following a worsening of environmental conditions, the size of the penguin population decreases, which does indeed support the fact that the claim is incorrect.

SUMMARY OF SENTENCE COMPLETIONS

- Read the sentence carefully and try to understand the general idea that it expresses.
- In most cases, the key to solving the question lies in understanding the logical relationships between the parts of the sentence. Conjunctions generally hint at these connections, as do punctuation (for example, a colon indicates that further elaboration will follow) and context.
- For each of the responses, insert all of the words in the blank spaces and check carefully whether they make sense. Do not choose a response based on the appropriateness of only some of the sets of words.
- Do not choose a response just because the content is consistent with reality, and do not reject a response just because the content does not appear realistic. Check only whether the response creates a sentence that has internal logic.

LOGIC

This part contains different types of questions, requiring you to perform a variety of tasks, but they all examine your ability to arrive at correct conclusions based on the information provided. The nature of the information and the conclusions to be arrived at differ from question to question. Pay close attention to what is asked of you in each question, and answer accordingly.

Logic questions may take the form of individual questions, each a self-contained unit with its own separate information, or they may appear as a cluster of questions that are based on information pertaining to the entire cluster.

Examples and Explanations:

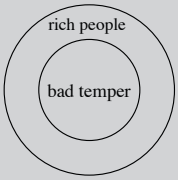
1. Two statements are given:
A. Only rich people are likely to be bad-tempered.
B. Only bad-tempered people are likely to wear glasses.

If the two statements are taken together, which of the following conclusions **necessarily** follows?

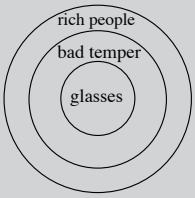
(1) All people who wear glasses are rich.
(2) There are no rich people who wear glasses.
(3) There are no bad-tempered people who are rich.
(4) All rich people are bad-tempered.

This type of question presents several statements that deal with sets (in this case, rich people, bad-tempered people and people who wear glasses) and the relationships between them.

A diagram is helpful for solving this type of question. Statement A says that only rich people are likely to be bad-tempered. This statement means that all bad-tempered people are rich (since according to the statement, no one who is not rich is bad-tempered), and this can be depicted in diagram form, with the group of bad-tempered people contained within the group of rich people, for example:



Statement B says that only bad-tempered people are likely to wear glasses. This statement means that all people who wear glasses are bad-tempered. We will incorporate this statement into the diagram, with the group of people who wear glasses contained within the group of bad-tempered people, thus:



The diagram is now a graphic representation of the relationships among the groups that results from taking both statements together.

We will now examine the possible responses. (Remember that you are being asked to find the response that would **necessarily** follow when the two statements are taken together.)

(1) The diagram shows that the entire group of people who wear glasses is contained within the group of rich people. In other words, all people who wear glasses are rich, and this is therefore the correct response.

(2) This response is incorrect, since it can be seen from the diagram that all people who wear glasses are rich.

(3) This response is also incorrect, since all bad-tempered people are rich.

(4) This response is incorrect since we can see that there could be rich people who are not bad-tempered.

Note: The first step is to fully understand the meaning of the statements and the relationships between the groups appearing in the statements. (For example, saying that only rich people are likely to be bad-tempered does not mean that all rich people are bad-tempered.) Only then should you draw a diagram representing the statements. Otherwise you may have an incorrect diagram, which will lead to an incorrect response.

2. Three women, Eva, Diane and Sheila, are sitting side by side on a bench, not necessarily in that order.
One of the women is a teacher, one is a singer, and one is a pharmacist.
The woman sitting to Diane's right is the teacher, and the woman sitting to Eva's right is the singer.
What is Sheila's profession?

(1) She must be a singer.
(2) She is either a teacher or a singer.
(3) She is either a pharmacist or a teacher.
(4) She must be a pharmacist.

In this question, you need to determine the order in which the three women are sitting and their professions. To solve questions of this type, where it is necessary to figure out what the order is within a group of items based on the information given, it is helpful to draw a diagram. First, search for definite facts, or try to deduce a definite conclusion from the information provided, which can serve as an "anchor" for solving the question. This question does not contain any definite facts, but a definite conclusion can be drawn from the information provided: It states that the teacher is sitting to Diane's right; in other words, Diane is not sitting in the rightmost place. It also states that the singer is sitting to Eva's right; in other words, Eva is also not sitting in the rightmost place. Thus, Sheila is definitely sitting in the rightmost place. After arriving at this definite conclusion, we can draw a diagram as follows:

_____ _____ Sheila

There are two possible ways that the two remaining women can be seated. Let us write down the two possibilities, and also note the professions of each, based on the information provided (the teacher is to Diane's right and the singer is to Eva's right):

1.	Diane pharmacist	Eva teacher	Sheila singer
2.	Eva pharmacist	Diane singer	Sheila teacher

We see that Sheila can be either the teacher or the singer, and the correct response is therefore (2).

3. During the time that Rachel was CEO of a computer company, the company's profits decreased considerably. As a result, Rachel's decision-making abilities were severely criticized. Coming to Rachel's defense, Joe pointed out several instances in which her decisions had produced positive results. In response, Martin, one of her critics, replied, "Even a broken clock shows the correct time twice a day."

In using this example, Martin was arguing that -

(1) there is no connection between the company's profits and Rachel's decision-making abilities
(2) the criticism directed at Rachel may have been exaggerated
(3) even in those instances which Joe cited, Rachel's decisions had, in fact, produced negative results
(4) a few successes do not prove the soundness of Rachel's decision-making ability

Since the subject of Martin's reply (the broken clock) does not appear to be related to the subject of his conversation with Joe (i.e., a CEO whose decision-making is drawing criticism), it can be deduced that Martin is answering Joe with a metaphor. In other words, Martin is trying to tell Joe that the situation which they are discussing could be compared to the situation described in his example.

The first stage in solving the question is understanding the idea behind the metaphor. Martin makes the point that even a broken clock shows the correct time twice a day. In other words, even something faulty, which does not possess the qualities needed for accomplishing its purpose, and is therefore of no use, sometimes "succeeds" in its role. If we now examine this idea within the context of the topic of Martin and Joe's conversation, we can deduce that Martin intended to say that even a CEO whose decision-making ability is totally unsound can, from time to time, make decisions that happen to produce positive results. In other words, if the decisions of the CEO produced positive results only on rare occasions, these few successes do not prove the soundness of her decision-making. Thus, (4) is the correct response.

4. Studies show that roads with speed bumps have a third the number of car accidents involving injuries to children than roads without speed bumps. As a result of these studies, the residents of Begonia Road decided to install speed bumps to reduce the number of injuries to children on their road.

Which of the following facts can serve as an argument for those who feel that the decision was not justified?

(1) Driving more slowly makes the driver more alert to what is happening on the road.
(2) Of the roads that were included in the studies, many more children played on the roads without speed bumps than on the roads with speed bumps.
(3) Knowing that a certain road has speed bumps causes drivers to choose alternate roads.
(4) The studies were conducted during the summer months, when children play outdoors more than at other times.

Response (1) can actually serve as an argument for those who feel that the decision was justified. Assuming that the more alert the driver, the smaller the likelihood of an accident, then if driving more slowly makes the driver more alert to what is happening on the road, installing speed bumps on Begonia Road is likely to decrease the number of injuries to children on this road.

In response (2), the decision by the residents of Begonia Road is based on the assumption that speed bumps are the reason for the relatively small number of car accidents involving injuries to children, but the fact presented in response (2) weakens this assumption. If fewer children played on the roads with speed bumps than on those without speed bumps, the likelihood of an accident involving injury to children would in any case be lower on roads with speed bumps. It is thus possible that the reason for the smaller number of accidents recorded on these roads is not the speed bumps, but instead the smaller number of children playing on these roads. Therefore, response (2) can serve as an argument for those opposing the decision, and it is the correct response.

The fact presented in response (3), like the fact presented in response (1), actually reinforces the assumption upon which the decision of the residents of Begonia Road is based. If knowing that there are speed bumps on a certain road causes drivers to choose alternate roads, then installing speed bumps on a particular road does indeed reduce the likelihood of car accidents on that road.

The fact presented in response (4) does not weaken the basis for the decision made by the residents of Begonia Road. If the studies that compared the number of children injured in roads without speed bumps and the number of children injured in roads with speed bumps were conducted at a time when children play outdoors more than at other times, it is almost certain that the total number of injured children was high at that time, but there is no reason to assume that this fact had an effect on the ratio (three times as high) between the number of children injured on roads without speed bumps and the number of children injured on roads with speed bumps. Therefore, there is nothing in this fact to make the residents of Begonia Road change their interpretation of the studies' findings.

5. Nat, who always tells the truth, and Tom, who always lies, were holding a conversation. Which of the following statements could not have been made during their conversation?

(1) I am telling the truth.
(2) We are both telling the truth.
(3) I am a liar.
(4) We are both liars.

To solve this question, each of the possible responses should be examined to determine whether at least one of the speakers could have made that statement.

(1) If the speaker is Nat, the statement is true, since it is a given that Nat always tells the truth. If the speaker is Tom, the statement is a lie, since it is a given that Tom always lies. In both instances there is no contradiction between the statement and the information given, and thus it is a statement that could have been made during their conversation.

(2) This statement is necessarily a lie, since it is a given that Tom always lies. It is therefore possible that Tom, who tells only lies, made this statement.

(3) This statement could not have been made by either of the speakers. Nat always tells the truth, and therefore he would not have made a statement which contradicts this fact. Tom, who always lies, could not have said that he is a liar, because that would be the truth. This is therefore the correct response.

(4) This is a lie, since Nat always tells the truth. Tom could have made this statement, because he always lies.

SUMMARY OF LOGIC QUESTIONS

- There are several types of logic questions. Pay attention to what is asked of you in each question.
- For certain questions, it is helpful to make a diagram of the facts provided and of the information that can be deduced with certainty. Organizing the information in diagram form makes it easier to examine the possible responses.
- If questions appear in cluster form, they too require that you arrive at conclusions based on the information provided. Deal with each question separately from the other questions in the cluster. Do not solve a question based on conclusions arrived at from information that pertains only to a different question!

READING COMPREHENSION

Instructions:

Read the text below carefully and answer the questions that follow.

The topics in the reading comprehension texts are taken from a wide variety of fields. The questions test your ability to understand a text, to recognize the relationships between its components (sentences and paragraphs), and to understand the ideas expressed in it. The questions may involve connections between different sections of the text, inferences based on the text, the text's structure, and so on.

Example and Explanations:

For over two hundred years man has been using animals for research in order to learn from the animals' cerebral, physiological and behavioral mechanisms about corresponding mechanisms in humans. Almost from the start, controversy arose as to whether using animals in this way was morally justified.

Until the 18th century, all aspects of life, including science, were governed by a religious perspective. According to this view, God created man in His image, and He created the other creatures to serve man. Thus, man is permitted to use animals for his own needs. The philosophical approaches of secular philosophers, as well, maintained that man has no moral obligation towards animals: Animals do not have the ability to use language; they therefore do not have beliefs, ambitions, or desires, and thus do not have interests that must be protected.

Objections to harming animals were voiced for the first time at the end of the 18th century. The English philosopher Jeremy Bentham asserted that the question that should be asked in this regard is not whether or not animals have awareness, but rather, whether they are able to feel pain, to which the answer is yes. Bentham's successors also disagreed with the approach that animals do not have beliefs and desires. They argued that a dog can believe that a certain bone is tasty even if it is incapable of formulating a sentence to that effect.

The controversy became more acute during the second half of the 19th century with the introduction of Charles Darwin's theory of evolution. Darwin maintained that animals and man have a common origin and pointed to the physiological similarities among the different species. This further reinforced the belief that the findings from experiments on animals could be applied to humans. However, since the theory of evolution placed man and animals on a single, continuous developmental axis, it was hard to continue to claim that only humans were capable of suffering or feeling pain.

A compromise was proposed in the 1970s by Australian philosopher Peter Singer. Singer suggested that the principle of benefit versus harm should be applied whenever an experiment on animals was being considered. According to this principle, the amount of good to be derived from the experiment – for humans and for animals – should be weighed against the amount of suffering it would cause, and the experiment should be conducted only if the benefit outweighed the harm. Singer, however, asserted that the interests of humans and those of animals do not carry equal weight. Thus, for example, in the case of a sinking ship, it is

preferable to sacrifice the life of a dog rather than that of a human being. Singer's opponents argued that nature is governed by the principle of the survival of the fittest, and therefore, any use that humans make of animals for their own needs – and certainly one designed to improve their chances of surviving – is justified.

(35) In recent years, advocates of the prohibition or restriction of the use of animals for research purposes are becoming increasingly vocal. The scientific community has formulated several guiding principles in this regard. For example, experiments on animals should be performed only if they are likely to bring real benefit to the human race; effort should be made to minimize the pain and suffering caused to animals during the course of any experiment; and (40) whenever possible, preference should be given to alternative methods of research (such as computer imaging). Medical schools have begun attempting to instill these values in their students. For example, in one course on research methods, students were required to plan an animal experiment on the efficacy of a medication, and then were required to find a way to answer the same question by means of research that did not involve animals.

Questions

1. It can be inferred from the second paragraph that "secular philosophers," (line 8) _____ individuals with a religious outlook, maintained that using animals for research purposes was justified, and that each approach _____ .

(1) as well as / justified its position using a different reason
(2) as opposed to / presented moral arguments to reinforce its position
(3) as well as / objected to other ways in which humans use animals
(4) as well as / explained itself on the grounds that animals do not have the ability to use language

This question uses a technique similar to that used in the sentence completion questions. A sentence is given which has parts missing. You must complete the sentence using the most suitable response. The question compares two approaches to animal experiments: one is the approach of the secular philosophers (referred to in line 8), and the second is the approach of individuals with a religious outlook. From the second paragraph it can be inferred that both approaches supported animal experiments: one for religious reasons (God's intention of designating animals to serve humans) and the other for philosophical reasons (humans have no moral responsibility towards animals since animals have no interests that require protection).

Response (1) is the correct response since it states that both approaches held the same attitude towards using animals for research purposes, but each gave a different reason to support its argument.

Response (2) is incorrect since it states that there was a difference in the attitudes of the two approaches, and that those with a religious outlook in fact objected to using animals for research purposes.

Response (3) is incorrect since it states that both approaches objected to using animals for other purposes, whereas the text states that according to both approaches, humans can use animals for any purpose.

Response (4) is incorrect because it attributes the reason given by the secular philosophers also to individuals with a religious outlook, though this was not the reason they gave.

2. The "approach" (line 14) is -

(1) that animals have awareness
(2) that harming animals is immoral
(3) that of the individuals with a religious outlook, referred to in the second paragraph
(4) that of the secular philosophers, referred to in the second paragraph

This question directs us to a particular word in the text. In such cases, it is advisable to reread the line referred to and the lines before and after it. According to line 14, the "approach" referred to in the question is that "animals do not have beliefs and desires". Since none of the possible responses uses these words, the meaning of each response must be examined:

Response (1) is incorrect because in order for animals to have awareness they must also have beliefs and desires, and this, as stated, contradicts the "approach".

Response (2) is incorrect since the approach referred to in lines 14-15 is actually that of the secular philosophers mentioned in the second paragraph, and they did not object to harming animals.

Response (3) is incorrect, because according to the second paragraph, individuals with a religious outlook believed that animals were created to serve humans, but they made no claims about the characteristics of animals or about their having beliefs and desires.

Response (4) is the correct response. The second paragraph states that the secular philosophers concluded from the fact that animals cannot use language that they have no ambitions, desires, or interests which must be protected.

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3. Which of the following statements about the theory of evolution is **not** correct according to the text?

(1) The controversy over the use of animals for research began even before the theory was introduced.
(2) It implied that the answer to the question posed by Bentham was that animals are able to feel pain.
(3) It supported the scientific justification for conducting experiments on animals.
(4) It presented a compromise position with regard to the use of animals for research purposes.

This question presents four statements relating to the theory of evolution, three correct and one incorrect. Read the question carefully. The correct answer to this question is the **incorrect statement**, and you must bear this in mind when choosing the answer and marking it on the answer sheet. The theory of evolution is first mentioned in the fourth paragraph of the text (lines 17-23). Reread this paragraph before attempting to answer the question.

Be aware that some of the statements in the possible responses may refer to other parts of the text, and it may be necessary to reread those sections.

We will now examine each of the four possible responses:
Response (1) is incorrect because the beginning of the fourth paragraph states that the controversy became more acute with the introduction of the theory of evolution. In other words, the controversy existed even before the theory of evolution was introduced. Thus, the statement in response (1) is true and, as stated, we are asked to find the incorrect statement.

Response (2): The question posed by Bentham was whether or not animals were capable of feeling pain (lines 13-14). According to the fourth paragraph, the theory of evolution implies that the answer to this question is yes, since "it was hard to continue to claim that only humans were capable of suffering or feeling pain" (lines 22-23). Thus, the statement made in response (2) is true, and therefore it, too, is not the correct response.

Response (3): According to the first paragraph, the scientific justification for performing experiments on animals is that we can learn from the different animal mechanisms about the corresponding mechanisms in humans. According to the theory of evolution, the different species are physiologically similar, and therefore it is justified to draw conclusions about humans from experiments on animals. In other words, the statement appearing in response (3) is correct, and it is thus not the response that is asked for.

Response (4) is the correct response because the statement it makes is incorrect. The theory of evolution provided arguments for both opponents and proponents of animal experiments, but it did not lead to any stand with regard to these experiments, and certainly did not present a compromise position. The person who proposed a compromise on this issue was the philosopher Peter Singer, who is referred to in the fifth paragraph.

4. According to Singer's approach to animal experiments (presented in the fifth paragraph) -

(1) Any experiment that has been proven to benefit humans should be performed.
(2) An experiment should not be permitted if it has been proven to cause suffering to animals.
(3) One should ensure that the benefit derived by humans from an experiment is equal to the benefit derived from it by animals.
(4) Experiments should not be conducted if the benefit which humans derive from them is less than the harm and pain caused to the animals in the experiment.

According to Singer's approach, the considerations involved in performing animal experiments should be based on the principle of "benefit versus harm"; in other words, he was in favor of conducting an experiment only if the benefit to be derived from it would outweigh the harm that it would cause.

The circumstances described in responses (1), (2) and (3) do not meet the criterion established by Singer. According to response (1), it might be proven that benefit would be derived from an experiment without our knowing that this benefit outweighs the harm that would be caused.

According to response (2), an experiment that causes suffering to animals should not be permitted. However, Singer said that such an experiment may be conducted if the benefit to be derived from it is greater than the suffering it causes.

Response (3) compares the benefit derived by humans from an experiment and the benefit derived by animals; Singer did not deal with this comparison at all.

Response (4) is the correct response, as Singer indeed objected to an experiment whose benefit was less than the harm that it would cause.

5. The main objective of the author of the text is -

(1) to describe the aspects of animal research that led to the controversy over the issue
(2) to point out the importance of animal research for advancing scientific knowledge
(3) to describe the main trends in the controversy over the use of animals for research purposes, from the beginning to the present
(4) to warn against the renewed widespread use of animals for research purposes

Let us examine the different responses:

Response (1) is incorrect because the author of the text does not deal at all with the details of experiments conducted on animals. The author does present aspects of animal research in the last paragraph. However, the purpose of these examples is not to explain why the controversy arose but to offer ways of solving it.

Response (2) is also incorrect, as the author of the text does not deal with the scientific importance of the experiments, but presumes that they are of great importance to science and that much information can be gathered in this manner.

Response (3) is the correct response, as the author of the text does present the different approaches that have existed over the years to the ethical question of experiments on animals.

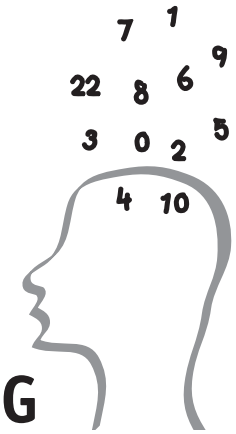
Response (4) is incorrect, as the author of the text does not express his own attitude to experiments on animals, as stated in this response, but instead presents an objective description of the ideas of others on this issue.

SUMMARY OF READING COMPREHENSION

– Read the text carefully and try to identify its main ideas and general structure. Some examinees prefer to first read the questions in order to get a general idea of what they will be asked to look for in the text, and then read the text itself. Others feel that reading the questions first wastes precious time. You may want to try practicing both methods.

– In answering a question, carefully read the section of the text referred to in the question (sometimes the question notes the line numbers). For some questions it is even advisable to read the entire paragraph, or at least a few of the sentences preceding and following the section under discussion.

– Carefully examine all of the possible responses. Do not choose a response that appears to be correct before examining the other responses. A response may be correct or logical in and of itself, but it may be the wrong answer to the specific question that is being asked or in view of what is stated in the text. Look for confirmation in the text as to the correctness or incorrectness of each response before deciding if it is the correct answer. A response may have to be eliminated because it is only partially correct. Therefore, make sure to read each response carefully from beginning to end.



QUANTITATIVE REASONING

The quantitative reasoning section tests your ability to use numbers and mathematical concepts to solve quantitative problems, and your ability to analyze data presented in different ways, such as table or graph form. This section requires only basic knowledge of mathematics (the material studied up to 9th-10th grades in most Israeli high schools).

- Several types of questions make up the quantitative reasoning section: Questions and Problems, Graph or Table Comprehension, and Quantitative Comparisons (examples of each type appear later on in the *Guide*).

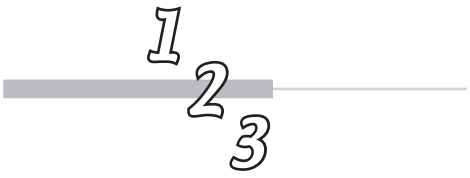
  Questions and Problems: These are multiple-choice questions (a question followed by four possible responses). They cover a variety of subjects, such as distance problems, work problems, combinatorial analysis, probability, equations, geometry and so on. Some are non-verbal questions in which the problem is presented numerically; others are verbal questions, which require that the problem be translated into mathematical terms; other questions deal with characteristics of geometrical figures, such as area, angles and so on.

  Graph or Table Comprehension: These are multiple-choice questions which relate to information appearing in a graph or a table. A table presents numerical data arranged in columns and rows. A graph presents data in graphic form, such as a curve or a bar chart. There are two main types of questions:

  - Questions involving the reading of data, in which you are asked to find information appearing in the graph or table.
  - Questions in which you are asked to make various inferences based on the data appearing in the graph or table.

  Quantitative Comparisons: These questions cover a variety of topics. They consist of pairs of quantities; in some cases additional information is provided. In each question, you are asked to decide, on the basis of the quantities and the additional information (if provided), whether one of the quantities is larger than the other, whether the two quantities are equal, or whether there is not enough information to determine the relationship between the two quantities.

Quantitative Reasoning



- In general, all questions of a given type are arranged in ascending order of difficulty. In other words, the easier questions, requiring less time to solve, appear first, with the questions becoming progressively more difficult and requiring more time to solve.
- The figures accompanying some of the questions are not necessarily drawn to scale. Do not rely solely on the figure's appearance to deduce line length, angle measure and so forth, unless these are specified in the figure (or in the question itself). But if a line in a figure appears to be straight, you may assume that it is, in fact, a straight line.
- A page of Symbols and Formulas appears at the beginning of each quantitative reasoning section. This page contains instructions, general comments and formulas, which you may refer to during the test. The page of Symbols and Formulas also appears on p. 35 of the Guide and in the quantitative reasoning sections of the practice test. You should familiarize yourself with its contents prior to taking the test.

Pages 36-58 contain a review of basic mathematical concepts, covering much of the material upon which the questions in the quantitative reasoning sections are based. The actual test may, however, contain some questions based on mathematical concepts and theorems that do not appear on these pages.

Pages 59-79 contain examples of different types of questions, each followed by a detailed explanation.

Quantitative Reasoning

This section contains 25 questions.
The time allotted is 25 minutes.

This section consists of questions and problems involving quantitative reasoning. Each question is followed by four possible responses. Choose the correct answer and mark its number in the appropriate place on the answer sheet.

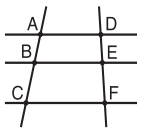
Note: The words appearing against a gray background are translated into several languages at the bottom of the page.

General Comments about the Quantitative Reasoning Section

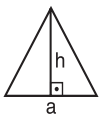
* The figures accompanying some of the questions are provided to help in answering the questions, but are not necessarily drawn to scale. Therefore, do not rely on the figures alone to deduce line length, angle measure, and so forth.
* If a line in a figure appears to be straight, you may assume that it is in fact a straight line.
* When a geometric term (side, radius, area, volume, etc.) appears in a question, it refers to a term whose value is greater than 0, unless stated otherwise.
* When $\sqrt{a}$ $(a > 0)$ appears in a question, it refers to the positive root of a.

Symbols and Formulas

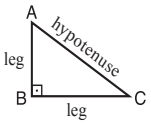
1. **The symbol** $\llcorner$ represents a 90° (right) angle.
   The symbol $\sphericalangle ABC$ represents the angle formed by line segments AB and BC.
   $a \parallel b$ means a is parallel to b.
   $a \perp b$ means a is perpendicular to b.
2. **Zero** is neither a positive nor a negative number.
   Zero is an even number.
   One is not a prime number.
3. **Percentages:** $a\%$ of x is equal to $\frac{a}{100} \cdot x$
4. **Exponents:** For every a that does not equal 0, and for any two integers n and m -
   a. $a^{-n} = \frac{1}{a^n}$ b. $a^{m+n} = a^m \cdot a^n$
   c. $a^{\frac{n}{m}} = \left(\sqrt[m]{a}\right)^n$ $(0 < a, 0 < m)$ d. $a^{n \cdot m} = (a^n)^m$
5. **Contracted Multiplication Formulas:**
   $(a \pm b)^2 = a^2 \pm 2ab + b^2$
   $(a + b)(a - b) = a^2 - b^2$
6. **Distance Problems:** $\frac{\text{distance}}{\text{time}}$ = speed (rate)
7. **Work Problems:** $\frac{\text{amount of work}}{\text{time}}$ = output (rate)
8. **Proportions:** If $AD \parallel BE \parallel CF$ then $\frac{AB}{DE} = \frac{BC}{EF}$ and $\frac{AB}{AC} = \frac{DE}{DF}$



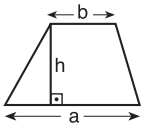
9. **Triangles:**
   a. **The area of a triangle** with base of length a and altitude to the base of length h is $\frac{a \cdot h}{2}$



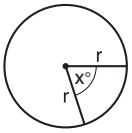
   b. **Pythagorean Theorem:** In any right triangle ABC, as in the figure, the following always holds true: $AC^2 = AB^2 + BC^2$



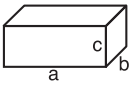
   c. In any right triangle whose angles measure 30°, 60° and 90°, the length of the leg opposite the 30° angle is equal to half the length of the hypotenuse.
10. **The area of a rectangle** of length a and width b is $a \cdot b$
11. **The area of a trapezoid** with one base a, the other base b, and altitude h is $\frac{(a+b) \cdot h}{2}$



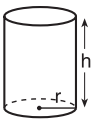
12. **The sum of the internal angles of a polygon** with n sides is $(180n - 360)$ degrees.
    In a regular polygon with n sides,
    each internal angle measures
    $\left(180 - \frac{360}{n}\right) = \left(\frac{180n - 360}{n}\right)$ degrees.
13. **Circle:**
    a. **The area** of a circle with radius r is πr^2 $(\pi = 3.14...)$
    b. **The circumference** of a circle with radius r is $2\pi r$
    c. **The area of a sector of a circle** with a central angle of $x°$ is $\pi r^2 \cdot \frac{x}{360}$



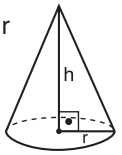
14. **Box (Rectangular Solid), Cube:**
    a. **The volume** of a box of length a, width b and height c is $a \cdot b \cdot c$
    b. **The surface area** of the box is $2ab + 2bc + 2ac$
    c. In a **cube**, $a = b = c$



15. **Cylinder:**
    a. **The lateral surface area** of a cylinder with base radius r and height h is $2\pi r \cdot h$
    b. **The surface area** of the cylinder is $2\pi r^2 + 2\pi r \cdot h = 2\pi r(r + h)$
    c. **The volume** of the cylinder is $\pi r^2 \cdot h$



16. **The volume of a cone** with base radius r and height h is $\frac{\pi r^2 \cdot h}{3}$



REVIEW OF BASIC MATHEMATICAL CONCEPTS

SYMBOLS

Below is a list of commonly used symbols that may appear on the test.

Symbol	Meaning
$a \parallel b$	straight lines a and b are parallel
$a \perp b$	straight line a is perpendicular to straight line b
⦜	90° angle (right angle)
$\sphericalangle ABC$	the angle formed by sides AB and BC
$x = y$	x equals y
$x \neq y$	x does not equal y
$x < y$	x is smaller than y
$x \leq y$	x is smaller than or equal to y
$0 < x, y$	both x and y are greater than 0
$x = \pm a$	x may be equal to a or to $(-a)$
$\lvert x \rvert$	the absolute value of x: if $0 < x$, then $x = \lvert x \rvert$ if $x < 0$, then $-x = \lvert x \rvert$ $0 = \lvert 0 \rvert$
$x : y$	the ratio of x to y

TYPES OF NUMBERS

Integer:	An integer is a number composed of whole units. An integer may be positive or negative; 0 is also an integer. For example: ... , -4 , -3 , -2 , -1 , 0 , 1 , 2 , 3 , 4 , ...
Non-integer:	A number that cannot be expressed in whole units. For example: 1.37 , $2\frac{1}{2}$, $-1\frac{1}{2}$
Consecutive numbers:	Integers that follow in sequence in differences of 1. For example, 4 and 5 are consecutive numbers; (-3) and (-2) are also consecutive numbers. In general, if n is an integer, then n and $(n + 1)$ are consecutive numbers.
Even number:	An integer which, when divided by 2, produces an integer (in other words, it is evenly divisible by 2). Note that based on this definition, 0 is an even number. In general, if n is an integer, then $2n$ is an even number.
Odd number:	An integer which, when divided by 2, produces a non-integer (in other words, it is not evenly divisible by 2). In general, if n is an integer, then $2n+1$ is an odd number.

Prime number:	An integer that is evenly divisible by only two numbers – itself and the number 1. For example, 13 is a prime number because it is evenly divisible only by 1 and 13. Note that 1 is not a prime number.
Reciprocal numbers	A pair of numbers which, when multiplied, equal 1. Examples: For $a \neq 0$, $b \neq 0$ a and $\frac{1}{a}$ are reciprocal numbers; $a \cdot \frac{1}{a} = 1$ $\frac{a}{b}$ and $\frac{b}{a}$ are reciprocal numbers; $\frac{a}{b} \cdot \frac{b}{a} = 1$
Opposite numbers	A pair of numbers whose sum equals zero. For example, a and $(-a)$ are opposite numbers. In other words, $(-a)$ is the opposite number of a $(a + (-a) = 0)$.

ARITHMETICAL OPERATIONS WITH EVEN AND ODD NUMBERS

even	+	even	=	even
odd	+	odd	=	even
odd	+	even	=	odd
even	–	even	=	even
odd	–	odd	=	even
odd	–	even	=	odd
even	–	odd	=	odd
even	×	even	=	even
odd	×	odd	=	odd
odd	×	even	=	even

There are no similar rules for division. For example, the quotient of two even numbers may be odd $\left(\frac{6}{2} = 3\right)$, even $\left(\frac{4}{2} = 2\right)$, or a non-integer $\left(\frac{6}{4} = 1\frac{1}{2}\right)$.

DIVISORS AND MULTIPLES

Factor (Divisor):

The factor of a positive integer is any positive integer that divides it evenly. For example, the numbers 1, 2, 3, 4, 6, 8, 12 and 24 are factors of 24.

Common Factor (Common Divisor):

A common factor of x and y is a number that is a factor of x and also a factor of y.
For example, 3 is a common factor of both 24 and 30.

Prime Factor (Prime Divisor):

A prime factor is a number that is a factor (divisor) of some other number and is itself a prime number. For example, 2 and 3 are the prime factors of 24. Any positive integer (greater than 1) can be written as the product of prime factors.
For example, $24 = 3 \cdot 2 \cdot 2 \cdot 2 = 3 \cdot 2^3$

Multiple:

A multiple of an integer x is any integer that is evenly divisible by x. For example, 16, 32 and 88 are multiples of 8.

MATHEMATICAL OPERATIONS WITH FRACTIONS

Reduction:

When the numerator and the denominator of a fraction have a common factor, each can be divided by the common factor, and the resulting fraction is equivalent to the original fraction with a smaller numerator and denominator. For example, if we divide the numerator and the denominator of $\frac{16}{12}$ by 4, the result is $\frac{4}{3}$, $\left(\frac{16}{12} = \frac{4}{3}\right)$.

Multiplication:

To multiply two fractions, multiply the numerators by each other and the denominators by each other.

For example: $\frac{2}{3} \cdot \frac{5}{7} = \frac{2 \cdot 5}{3 \cdot 7} = \frac{10}{21}$

Or in general: $\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$

Division:

To divide a number (integer or fraction) by a fraction, multiply the number by the reciprocal of the divisor.
(The reciprocal of $\frac{a}{b}$ is $\frac{b}{a}$)

For example: $\frac{2}{5} : \frac{3}{8} = \frac{2}{5} \cdot \frac{8}{3} = \frac{2 \cdot 8}{5 \cdot 3} = \frac{16}{15}$

Or in general: $\frac{\frac{a}{b}}{\frac{c}{d}} = \frac{a}{b} : \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{a \cdot d}{b \cdot c}$

To multiply or divide an integer by a fraction, the integer can be regarded as a fraction whose denominator is 1, for example: $2 = \frac{2}{1}$

Addition and Subtraction:

To add or subtract fractions, they must be converted into fractions that have a common denominator. A **common denominator** is a number that is evenly divisible by the denominator of each of the fractions. After finding a suitable common denominator, each of the fractions must be converted into a fraction that has this common denominator. To do so, multiply the numerator and denominator of each of the fractions by the same integer, so that the number obtained in the denominator will be the number that was chosen to be the common denominator. Since the numerator and denominator are multiplied by the same number, the fraction has actually been multiplied by 1, and its value has not changed. After converting the fractions so that they have a common denominator, add or subtract the new numerators that were obtained, and reduce to lowest terms where possible.

For example, to solve the problem: $\frac{3}{4}+\frac{1}{6}+\frac{5}{8}$

24 is a possible common denominator, since it is evenly divisible by the denominators of each of the fractions: 24 : 4 = 6, 24 : 6 = 4, 24 : 8 = 3

We will now convert each of the fractions into fractions with this common denominator:

To convert $\frac{3}{4}$ into a fraction whose denominator is 24, multiply the numerator and the denominator by 6: $\frac{3\cdot 6}{4\cdot 6}=\frac{18}{24}$

To convert $\frac{1}{6}$ into a fraction whose denominator is 24, multiply the numerator and the denominator by 4: $\frac{1\cdot 4}{6\cdot 4}=\frac{4}{24}$

To convert $\frac{5}{8}$ into a fraction whose denominator is 24, multiply the numerator and the denominator by 3: $\frac{5\cdot 3}{8\cdot 3}=\frac{15}{24}$

Next, add up only the numerators: $\frac{18}{24}+\frac{4}{24}+\frac{15}{24}=\frac{18+4+15}{24}=\frac{37}{24}$

Percentages

Percentages are a specific case of fractions: $a\%$ of x is $\frac{a}{100}\cdot x$. In these questions, convert the percentages to hundredths, and solve as in normal fraction problems.

Example 1: What is 60 percent of 80? (or: What is 60% of 80?)
Instead of 60 percent, substitute 60 hundredths, express the question in mathematical terms, and solve it as you would a normal multiplication of fractions:

$\frac{60}{100}\cdot 80=\frac{60\cdot 80}{100}=6\cdot 8=48$

Thus, 60% of 80 is 48.

Example 2: Joe had to pay 15 shekels tax on the 50 shekels that he earned. What percent is the tax?

The question is actually "What percent of 50 is 15?"
Convert the question into a mathematical expression: $\frac{x}{100}\cdot 50=15$

and solve the equation for x: $\frac{x}{2}=15$

Thus, $x=30$. In other words, 15 is 30% of 50, which is the percentage of the tax.

For questions that involve a change expressed as a percentage, convert the question into one of the two general formats presented in examples 1 and 2 (what is x percent of y, or what percent of y is x), and solve as a fraction problem.

Example 3: The price of an item that cost 80 shekels was raised by 25%. What is the new price?
Questions dealing with change expressed as a percentage generally involve a percent of the original price unless otherwise specified. Since 25% was added to the old price, the new price is 125% of the old price (100% + 25%). Therefore, you must calculate what 125% of 80 is (as in example 1).
Substitute hundredths for percent and solve $\frac{125}{100} \cdot 80 = 100$. The new price is 100 shekels.

Example 4: The change in the price of a certain item is given, and you are asked to calculate the change as a percentage.
For example, the price of an item dropped from 15 shekels to 12 shekels. By what percentage did the price drop?
The difference in the price is 3 shekels out of 15 shekels. You have to calculate what percent of 15 is 3 (similar to example 2).
Convert the question into a mathematical expression: $\frac{x}{100} \cdot 15 = 3$, and solve the equation for x: $x = \frac{3 \cdot 100}{15} = 20$

Thus, the price dropped by 20%.

Ratio

The ratio of x to y is written as x : y.

For example, the ratio between the number of pairs of socks and the number of shirts that Eli has is 3 : 2. In other words, for every 3 pairs of socks, Eli has 2 shirts. Stating it differently, the number of socks that Eli has is $\frac{3}{2}$ greater than the number of shirts that he has.

Arithmetic Mean

The **arithmetic mean** (average) of a set of values is the sum of the values divided by the number of values.

For example, the average of the set of values 1, 3, 5, 10, and 21 is 8 because

$$\frac{1+3+5+10+21}{5} = \frac{40}{5} = 8$$

If the average of a set of values is given, their sum can be calculated by multiplying the average by the number of values.

Example: Danny bought 5 items at an average price of 10 shekels. How much did Danny pay for all of the items?

If we multiply the average by the number of items, we will obtain $10 \cdot 5 = 50$. Thus, Danny paid a total of 50 shekels for all of the items that he bought.

In general, the term "average" will be used in the questions rather than "arithmetic mean."

A **weighted average** is an average that takes into account the relative weight of each of the values in a set.

Example: Robert's score on the mid-term exam was 75, and his score on the final exam was 90. If the weight of the final exam is twice that of the mid-term exam, what is Robert's final grade in the course?

The set of values in this case is 75 and 90, but each has a different weight in Robert's final grade for the course. The score of 75 has a weight of 1 and the score of 90 has a weight of 2. To calculate the weighted average, multiply each score by the weight assigned to it, and divide by the sum of the weights: $\frac{1 \cdot 75 + 2 \cdot 90}{1 + 2} = 85$. Thus, Robert's grade in the course is 85.

This calculation is identical to the calculation of a simple average of the three numbers 75, 90 and 90.

POWERS AND ROOTS

Raising a number to the nth power (n is a positive integer) means multiplying it by itself n times.

For example: $2^3 = 2 \cdot 2 \cdot 2$

Or in general: $\underbrace{a \cdot \ldots \cdot a}_{n \text{ times}} \cdot a = a^n$

The expression a^n is called a power; n is the exponent; and a is the base.

A positive number raised to the 0th power equals 1. Thus, for any $a \neq 0$, $a^0 = 1$.

When a number is raised to a negative power, the result is the same as that obtained by raising the reciprocal of the base to the opposite power. For example: $2^{-3} = \left(\frac{1}{2}\right)^3 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$

Or in general: $a^{-n} = \left(\frac{1}{a}\right)^n = \frac{1}{a^n}$

The nth root of a positive number a, expressed as $\sqrt[n]{a}$, is b, which if raised to the nth power, will give a as follows:

For example: $\sqrt[2]{16} = 4$, because $4^2 = 16$

$\sqrt[3]{125} = 5$, because $5^3 = 125$

$\sqrt[4]{81} = 3$, because $3^4 = 81$

It should be stressed that when $\sqrt{a}$ $(0 < a)$ appears in a question, it refers to the positive root of a.

When the root is not specified, a square (2nd-order) root is intended, for example, $\sqrt{81} = \sqrt[2]{81} = 9$.

A root can also be expressed as a power in which the exponent is a fraction. This fraction is the reciprocal of the order of the root, $\sqrt[n]{a} = a^{\frac{1}{n}}$ $(0 < a)$.

Basic rules for operations involving powers (for any n and m):

Multiplication:

To multiply powers with the same base, add the exponents: $a^m \cdot a^n = a^{m+n}$

Division:

To divide a power by another power with the same base, subtract the exponent in the denominator from the exponent in the numerator: $\frac{a^m}{a^n} = a^{(m-n)}$

Note: When the powers do not have the same base, the exponents cannot be added or subtracted.

Raising to a power:

To raise a power to a power, multiply the exponents: $(a^m)^n = a^{(m \cdot n)}$

Raising a product or a quotient to a power:

$(a \cdot b)^m = a^m \cdot b^m$; $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

Since roots can also be expressed as powers, the laws for solving problems involving powers can also be applied to roots.

For example, to calculate the product $\sqrt[m]{a} \cdot \sqrt[n]{a}$ $(0 < a)$, express the roots as powers: $\sqrt[m]{a} \cdot \sqrt[n]{a} = a^{\frac{1}{m}} \cdot a^{\frac{1}{n}}$

The next step is the same as when multiplying powers; in other words, add the exponents: $a^{\frac{1}{m}} \cdot a^{\frac{1}{n}} = a^{\left(\frac{1}{m}+\frac{1}{n}\right)}$

Below are a number of basic rules that apply to inequalities involving powers:

If	$0 < b < a$	and	$0 < n$	then	$b^n < a^n$
If	$0 < b < a$	and	$n < 0$	then	$a^n < b^n$
If	$1 < a$	and	$m < n$	then	$a^m < a^n$
If	$0 < a < 1$	and	$m < n$	then	$a^n < a^m$

CONTRACTED MULTIPLICATION FORMULAS

To multiply two expressions enclosed in parentheses, each of which is the sum of two terms, multiply each of the terms in the first expression by each of the terms in the second expression, then add the products.

For example: $(a + b) \cdot (c + d) = ac + ad + bc + bd$

This general formula can be used for finding the product of any two expressions, but to save time, you might want to memorize some common formulas:

$(a + b)^2 = (a + b) \cdot (a + b) = a^2 + 2ab + b^2$

$(a - b)^2 = (a - b) \cdot (a - b) = a^2 - 2ab + b^2$

$(a - b) \cdot (a + b) = a^2 - b^2$

COMBINATORIAL ANALYSIS

The Number of Results in a Multi-Stage Experiment

The number of possible results of an experiment consisting of several independent stages (that is, they do not affect each other) is the product of the number of possible results in each stage.

For example, if we toss a die and then toss a coin, what is the number of possible results of this experiment?

The number of possible results of tossing a die is 6, and the number of possible results of tossing a coin is 2. Thus, the number of possible results of this experiment is $6 \cdot 2 = 12$. One of the 12 possible results is the number 3 on the die and tails on the coin.

It makes no difference whether we first toss the die and then toss the coin, or toss both at the same time. In either case, there are 12 possible results.

Ordered Samples

An ordered sample is one in which the order of the results obtained in a multi-stage experiment is important.
Example: A basket contains 9 slips of paper, numbered 1 through 9. If 3 slips of paper are drawn at random from the basket one after another, and their numbers written in a row, a three-digit number will be obtained. How many different numbers can be obtained in this way?

To answer the question, we have to know the sampling method that is being used. In any case, the order in which the results are obtained is important; for example, the number 123 is different from the number 213.

a. **Sampling with replacement**: Each slip of paper is replaced in the basket after it is drawn, making it possible for it to be drawn again. The number of possible numbers that can be obtained each time a slip of paper is drawn from the basket is 9. Therefore, the number of three-digit numbers that can be formed is $9 \cdot 9 \cdot 9 = 729$.

b. **Sampling without replacement:** The slips of paper that were drawn from the basket are not replaced. The number of possible numbers that can be obtained when the first slip is drawn is 9; when the second slip is drawn, only 8 (since one slip has already been withdrawn from the basket); and when the third slip is drawn, 7. Thus the number of possible numbers is $7 \cdot 8 \cdot 9 = 504$.

In general, the number of possibilities for creating an ordered row of r items out of a set of n items (3 out of 9 in the above example) is:

a. n^r, if each item can be drawn more than once (sampling with replacement).

b. $n \cdot (n - 1) \cdot \ldots \cdot (n - r + 1)$, if each item can be drawn no more than once (sampling without replacement).

Number of Possible Arrangements (Permutations) of an Ordered Sample

The number of different possible arrangements of the 9 slips of paper, i.e., the number of possibilities for creating an ordered row of all 9 slips of paper, with each slip appearing only once ($n = r$), equals $1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8 \cdot 9 = 362{,}880$.

In general, if n is the number of items in a set, then the number of possible arrangements is $1 \cdot 2 \cdot 3 \cdot \ldots \cdot (n-1) \cdot n$. This number is written as **n!**, and is called "n factorial."

Non-Ordered Samples

If the order of the results obtained in a multi-stage experiment is not important, the sample is a non-ordered sample. **The number of non-ordered samples equals the number of ordered samples divided by the number of possible arrangements.**

Example: A basket contains 9 pens, each of a different color. Three pens are drawn at random from the basket and not replaced. How many samples (sets) of different colored pens can be obtained? The number of ordered samples is $9 \cdot 8 \cdot 7 = 504$. The number of possible arrangements (in each sample) is $3 \cdot 2 \cdot 1 = 6$.

The number of non-ordered samples is $\frac{504}{6} = 84$.

PROBABILITY

Probability theory is a mathematical model for phenomena (experiments) the occurrence of which is not certain. Such situations can have a number of possible scenarios or outcomes. Each possible outcome is called a "simple event," and the collection of outcomes – an "event." (For the sake of brevity, we will use the term event to mean a simple event.) Each event is assigned a number from 0 to 1, which reflects the probability (likelihood) that the event will occur. The higher the probability, the greater the chance the event will occur. An event that is certain to occur has a probability of 1, and an event that has no possibility of occurring has a probability of 0.

Sometimes, each of the possible outcomes of a particular experiment has an equal probability (in other words, each of the simple events has an equal probability).

Examples of experiments of this type

The tossing of a coin: The probability of "heads" coming up is equal to the probability of "tails" coming up. This probability is $\frac{1}{2}$.

The tossing of a die: The probability of obtaining each of the numbers appearing on the faces of the die is $\frac{1}{6}$.

These are cases of tossing a fair die/fair coin.

The random removal of a ball from a bag containing 5 balls of equal size: The probability of randomly removing each of the balls is $\frac{1}{5}$.

When all possible outcomes have an equal probability, the probability of an outcome occurring is calculated as follows:

The number of possible outcomes of a particular event, divided by the total number of possible outcomes of the experiment (phenomenon).

For example, the probability that in tossing a single die we will obtain the event "the outcome is less than or equal to 3" is $\frac{3}{6}$ or $\frac{1}{2}$, because this event has 3 possible outcomes (outcomes 1, 2 and 3), and the experiment of tossing a die has a total of 6 possible outcomes.

The probability that two events will occur

When two events occur at the same time or one after the other, two situations are possible:

A. The events are independent, i.e., the probability of one event occurring is not affected by the probability of the other event occurring.

The probability of both events occurring is equal to the product of the probabilities of each individual event occurring.

For example, in tossing two fair dice, the probability that a number that is less than or equal to 3 will turn up twice is equal to the product of the probabilities of a number that is less than or equal to 3 turning up in each of the tosses, since the outcome of tossing one die does not affect the outcome of tossing the other die.

This probability is equal to $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$.

B. The events are dependent, that is, the probability of a particular event occurring is affected by the occurrence of a different event. In other words, the probability of a particular event occurring after (or given that) another event has occurred is different from the probability of that particular event occurring without such knowledge. The probability of the event "the outcome is less than or equal to 3" (we will call this event A), given that we know that in tossing the die the event "outcome is even" has occurred (we will call this event B), is calculated as follows: The number of outcomes in which both A and B occurred (in the example, 2 is the only outcome that is both even and less than or equal to 3), divided by the number of outcomes in which B occurred (outcomes 2, 4 and 6 are even).

Therefore, the probability is $\frac{1}{3}$.

This probability is different from the probability of event A (which equals $\frac{1}{2}$, as calculated previously).

Distance, Speed (Rate), Time

The speed (rate) at which an object travels is the distance that the object covers in a unit of time. The formula for the relationship among the speed, the distance the object covers and the amount of time it requires to cover that distance is:

$v = \frac{s}{t}$ where v = the speed (rate)
s = distance
t = time

All possible relationships among distance, speed and time can be derived from this formula:

$t = \frac{s}{v}$ and $s = v \cdot t$

Using these relationships, any unknown variable out of the three can be calculated if the other two variables are known. For example, a train traveled 240 kilometers at a speed of 80 kilometers per hour. How long did the journey take?

You are given v (80 kph) and s (240 km), and you have to determine t. Substituting the given information into the formula $t = \frac{s}{v}$, we get $t = \frac{240}{80} = 3$. Thus, the journey took 3 hours.

Meters can be converted to kilometers and seconds to hours, and vice versa. There are 1,000 meters in every kilometer (1 meter = $\frac{1}{1{,}000}$ kilometer).

There are 3,600 seconds, which equal 60 minutes, in every hour (1 second = $\frac{1}{3{,}600}$ hour).

A speed of 1 kilometer per hour is equal to a speed of $\frac{5}{18}$ meters per second (or $\frac{1{,}000}{3{,}600}$ meters per second).

A speed of 1 meter per second is equal to a speed of 3.6 kilometers per hour.

Work (Output)

Output is the amount of work per unit of time.
The formula for the relationship between output, amount of work and the time needed to do the work is $p = \frac{w}{t}$, where p = output (rate)
w = amount of work
t = time

All possible relationships between output, amount of work and time can be derived from this formula: $t = \frac{w}{p}$ and $w = p \cdot t$

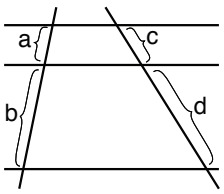
This formula can be used to calculate any unknown of the three variables if the other two are known. For example, a builder can finish building one wall in 3 hours. How many hours would be needed for two builders working at the same rate to finish building 5 walls?

We are given the amount of work of one builder (1 wall), and the amount of time spent working (3 hours). Therefore his output is $\frac{1}{3}$ of a wall in an hour. Since the question involves two builders, the output of both is $2 \cdot \frac{1}{3} = \frac{2}{3}$

We are also given the amount of work which both builders are required to do – 5 walls. We can therefore calculate the amount of time they will need: $t = 5 : \frac{2}{3} = 5 \cdot \frac{3}{2} = \frac{15}{2} = 7\frac{1}{2}$. Thus, they will need $7\frac{1}{2}$ hours.

PARALLEL (STRAIGHT) LINES

Parallel lines that intersect any two straight lines divide the straight lines into segments that are proportional in length.
Thus in the figure, $\frac{a}{c} = \frac{b}{d}$, $\frac{a}{b} = \frac{c}{d}$ and $\frac{a}{a+b} = \frac{c}{c+d}$.
Other relationships between the segments can be deduced based on the given relationships.

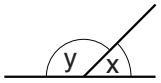


Angles

An angle is a right angle if it measures 90°.
An angle is an acute angle if it measures less than 90°.
An angle is an obtuse angle if it measures more than 90°.

Adjacent Angles

The two angles that are formed between a straight line and a ray extending from a point on the straight line are called adjacent angles. Together they form a straight angle and their sum therefore equals 180°. For example, in the figure, x and y are adjacent angles; therefore, $x + y = 180°$.

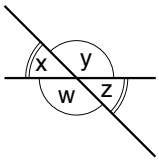


Vertical Angles

When two straight lines intersect, they form four angles. Each pair of non-adjacent angles are called vertical angles and they have the same measure.

In the figure, x and z are vertical angles and therefore have the same measure, as do y and w; in other words, $x = z$ and $y = w$.

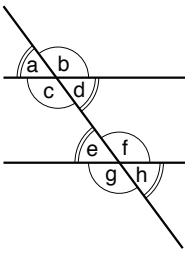
When a straight line intersects two parallel lines (transversal), eight angles are formed, as in the figure: a, b, c, d, e, f, g, h .



Corresponding Angles

Corresponding angles are angles located on the same side of a transversal and on the same side of the parallel lines. Corresponding angles have the same measure (see figure).

Thus, in the figure, $a = e$, $c = g$, $b = f$, $d = h$



Alternate Angles

Alternate angles are located on opposite sides of a transversal and on opposite sides of the parallel lines. Alternate angles have the same measure.

Thus, in the figure, $c = f$, $d = e$, $a = h$, $b = g$.

Other relationships between the different angles can be deduced based on the given relationships.

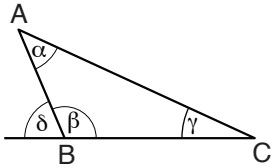
For example: since c and d are adjacent angles ($c + d = 180°$), and since c and f are alternate angles ($c = f$), then obviously, $d + f = 180°$.
Similarly, we can prove that $c + e = 180°$, and so on.

TRIANGLES

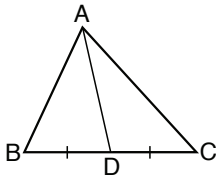
Angles of a Triangle

The sum of the interior angles of any triangle is 180°.
In the figure, $\alpha + \beta + \gamma = 180°$.

An angle adjacent to one of the triangle's angles is called an exterior angle, and it is equal to the sum of the other two angles of the triangle. For example, in the figure, δ is the angle adjacent to β, and therefore $\delta = \alpha + \gamma$.



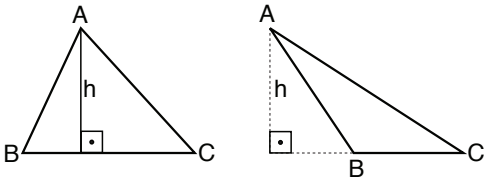
In all triangles, the longer side lies opposite the larger angle. For example, in the figure on the previous page, if $\gamma < \alpha < \beta$, it follows that side AC (which is opposite angle β) is longer than side BC (which is opposite angle α), and side BC is longer than side AB (which is opposite angle γ).



Median of a Triangle is a line that joins a vertex of a triangle to the midpoint of the opposite side.
For example, in the triangle in the figure, AD is the median to side BC (therefore BD = DC).

Altitude of a Triangle

The altitude to a side of a triangle is a perpendicular line drawn from a vertex of the triangle to the opposite side.
For example, in each of the triangles in the figures, h is the altitude to side BC.



Area of a Triangle

The area of a triangle equals half the product of the length of one of the sides multiplied by the altitude to that side.
For example, the area of each triangle ABC in the above figures is $\frac{BC \cdot h}{2}$.

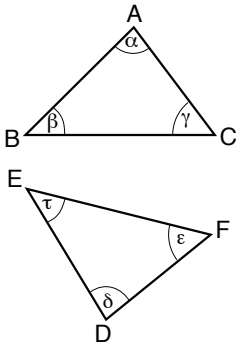
Inequality in a Triangle

In every triangle, the sum of the lengths of any two sides is greater than the length of the third side.
For example, in the triangles in the above figures (AB + BC) > AC.

Congruent Triangles

Two geometric figures are congruent if one of them can be placed on the other in such a way that they both coincide. **Congruent triangles** are a specific case of congruence.

If two triangles are congruent, their respective sides and angles are equal.
For example, triangles ABC and DEF in the figure are congruent. Therefore, AB = DE, BC = EF, AC = DF, and $\alpha = \delta$, $\beta = \tau$, $\gamma = \varepsilon$.



There are 4 theorems that enable us to deduce that two triangles are congruent:

(a) Two triangles are congruent if two sides of one triangle equal the two corresponding sides of another triangle, and the angle between these sides in one triangle is equal to the corresponding angle in the other triangle.

For example, the triangles in the figure are congruent if AB = DE, AC = DF and $\alpha = \delta$.

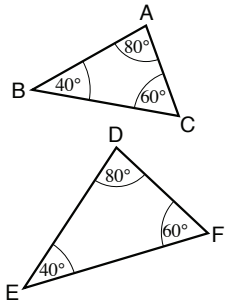
(b) Two triangles are congruent if two angles of one triangle are equal to the two corresponding angles of another triangle, and the length of the side between these angles in one triangle equals the length of the corresponding side in the other triangle.
For example, the two triangles in the figure are congruent if $\alpha = \delta$, $\beta = \tau$ and AB = DE.

(c) Two triangles are congruent if the three sides of one triangle equal the three sides of the other triangle.

(d) Two triangles are congruent if two sides of one triangle equal the corresponding two sides of the other triangle, and the angle opposite the longer of the two sides of one triangle is equal to the corresponding angle in the other triangle.
For example, the triangles in the figure are congruent if AB = DE, AC = DF, and $\gamma = \varepsilon$ (when AB > AC and DE > DF).

Similar Triangles

Two triangles are similar if the three angles of one triangle are equal to the three angles of the other triangle. In similar triangles, the ratio between any two sides of one triangle is the same as the ratio between the corresponding two sides of the other triangle.

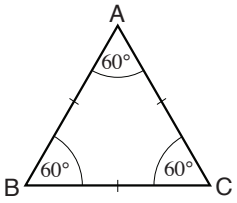


For example, triangles ABC and DEF in the figure are similar. Therefore, $\frac{AB}{AC} = \frac{DE}{DF}$ and so on.

It follows that $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$.

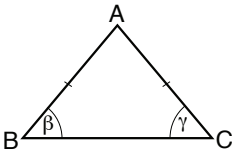
TYPES OF TRIANGLES

An **equilateral triangle** is a triangle whose sides are all of equal length. For example, in the figure, AB = BC = AC. In a triangle of this type, all of the angles are also equal (60°).



If the length of the side of such a triangle is a, then its altitude is $a\frac{\sqrt{3}}{2}$ and its area is $a^2\frac{\sqrt{3}}{4}$

An **isosceles triangle** is a triangle with two sides of equal length.
For example, in the figure, AB = AC.
The two angles opposite the equal sides are also equal.
For example, in the figure, $\beta = \gamma$.

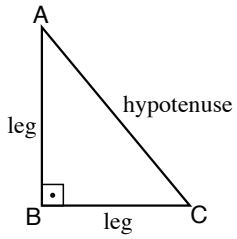


An **acute triangle** is a triangle in which all angles are acute.

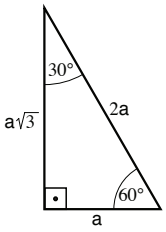
An **obtuse triangle** is a triangle with one obtuse angle.

A **right triangle** is a triangle with one angle that is a right angle (90°). The side opposite the right angle (side AC in the figure) is called the **hypotenuse**, and the other two sides are the **legs** (sides AB and BC in the figure). According to the Pythagorean theorem, in a right triangle the square of the hypotenuse is equal to the sum of the squares of the legs.

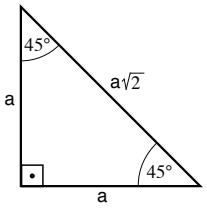
For example, in the figure, $AC^2 = AB^2 + BC^2$. This formula can be used to find the length of any side if the lengths of the other two sides are given.



In a right triangle whose angles measure 30°, 60° and 90°, the length of the leg opposite the 30° angle equals half the length of the hypotenuse. For example, the length of the hypotenuse in the figure is 2a. Therefore, the length of the leg opposite the 30° angle is a. It follows from the Pythagorean theorem that the length of the leg opposite the 60° angle is $a\sqrt{3}$.

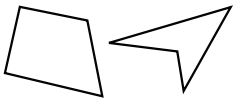


In an isosceles right triangle, the angles measure 45°, 45° and 90°, the two legs are of equal length, and the length of the hypotenuse is $\sqrt{2}$ times greater than the length of the legs.



QUADRILATERALS

A quadrilateral is any four-sided polygon. For example:



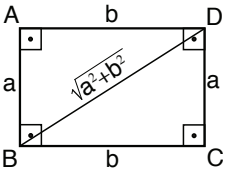
TYPES OF QUADRILATERALS

Rectangles and Squares

A **rectangle** is a quadrilateral whose angles are all right angles. The opposite pairs of sides in a rectangle are equal in length.

The **perimeter of the rectangle** in the figure is $2a + 2b$ or $2(a + b)$.

The length of the diagonal of a rectangle is $\sqrt{a^2 + b^2}$ (based on the Pythagorean theorem).

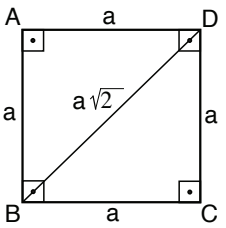


The area of the rectangle (S) is the product of the lengths of two adjacent sides. For example, in the figure, $S = a \cdot b$.

A **square** is a rectangle whose sides are all of equal length.

The **perimeter of the square** in the figure is 4a.

The length of the diagonal of the square in the figure is $\sqrt{a^2 + a^2} = a\sqrt{2}$

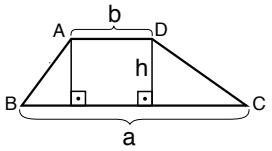


The area of a square is equal to the square of the length of the side. For example, in the figure, $S = a^2$.

TRAPEZOID

A trapezoid is a quadrilateral with only one pair of parallel sides. The parallel sides are called **bases**, and the other two sides are called **legs**. The bases of a trapezoid are not equal, and are therefore referred to as the long base and short base. The altitude of a trapezoid is a segment joining the bases of the trapezoid and perpendicular to them.

The **area of a trapezoid** is equal to the sum of the length of the bases multiplied by half the altitude.



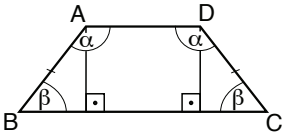
For example, in the figure: The length of the long base (BC) is a.

The length of the short base (AD) is b.

The length of the altitude is h.

The area of the trapezoid is $S = \frac{h \cdot (a+b)}{2}$.

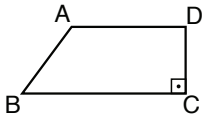
An **isosceles trapezoid** is a trapezoid whose legs are of equal length. For example, in the figure, AB = DC. The base angles of an isosceles trapezoid are equal.



For example, in the figure, $\sphericalangle BAD = \sphericalangle CDA = \alpha$, $\sphericalangle ABC = \sphericalangle DCB = \beta$.

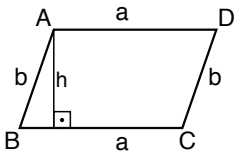
In this type of trapezoid, if two altitudes are drawn from the ends of the short base to the long base, a rectangle and two congruent right triangles are obtained.

A **right trapezoid** is a trapezoid in which one of the base angles is a right angle (see figure).



PARALLELOGRAMS AND RHOMBUSES

A **parallelogram** is a quadrilateral in which each pair of opposite sides is parallel and of equal length.



For example, in the parallelogram in the figure: AB || DC, AD || BC

AB = DC, AD = BC

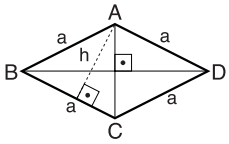
The **diagonals of a parallelogram** bisect each other.

As stated, each pair of opposite sides in a **parallelogram** is of equal length. Therefore, the **perimeter of the parallelogram** in the figure is 2a + 2b.

The **area of a parallelogram** equals the product of a side multiplied by the altitude to that side. For example, the area of the parallelogram in the figure is $a \cdot h$.

A **rhombus** is a quadrilateral whose four sides are all equal. Each pair of opposite sides in a rhombus is parallel, and it can therefore be regarded as a parallelogram with equal sides.

Diagonals of a Rhombus



Since a rhombus is a type of parallelogram, its diagonals bisect each other.
In a rhombus, the diagonals are also **perpendicular** to each other.
Since all of the sides of a rhombus are of equal length, the **perimeter of the rhombus** in the figure is $4a$.

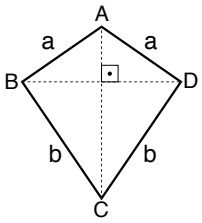
Area of a Rhombus

Since a rhombus is a type of parallelogram, its area, too, can be calculated as the product of a side multiplied by the altitude (to that side).
For example, the area of the rhombus in the figure is $a \cdot h$.

In addition, the area of a rhombus can be calculated as half the product of its diagonals.

For example, the area of the rhombus in the figure is $\frac{AC \cdot BD}{2}$.

KITE (DELTOID)



A kite is a quadrilateral formed by two isosceles triangles joined at their bases. For example, kite $ABCD$ in the figure is composed of triangles ABD and BCD ($AB = AD$, $CB = CD$).

The diagonal joining the vertices of the two isosceles triangles bisects the diagonal that is the base of the two isosceles triangles and is perpendicular to it.
(For example, in the figure, AC bisects BD and $AC \perp BD$)

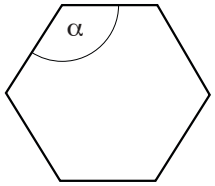
The **perimeter of the kite** in the figure is $2a + 2b$.

The **area of a kite** equals half the product of the lengths of the diagonals.

For example, the area of the kite in the figure is $\frac{AC \cdot BD}{2}$.

REGULAR POLYGON

A regular polygon is a polygon whose sides are all of equal length and whose interior angles have the same measure.



Examples: A regular pentagon is a five-sided regular polygon.
A regular hexagon is a six-sided regular polygon.
A regular octagon is an eight-sided regular polygon.

The size of the interior angle of a regular polygon with n sides can be calculated using the formula $\alpha = \left(180° - \frac{360°}{n}\right)$

For example, the figure shows a regular hexagon. The size of each of its interior angles is 120°, because $\alpha = 180° - \frac{360°}{6} = 120°$

CIRCLE

A **radius** is a line segment that joins the center of a circle to a point on its circumference.

A **chord** of a circle is a line segment that passes though the circle and joins two points on its circumference.

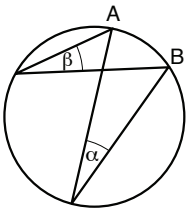
A **diameter** of a circle is a chord that passes through its center. The length of a circle's diameter is twice the length of its radius. If the radius of a circle is r, the diameter of the circle is 2r.

An **arc** is the part of the circle between two points on its circumference.

The **circumference** of a circle with radius r is $2\pi r$. (The value of π is approximately 3.14.)

The **area** of a circle with radius r is πr^2.

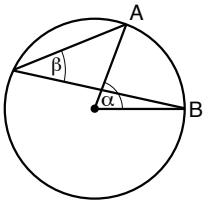
Inscribed Angle



An inscribed angle is an angle whose vertex lies on the circumference of a circle and whose sides are chords of the circle. Inscribed angles intercepting the same arc have the same measure.

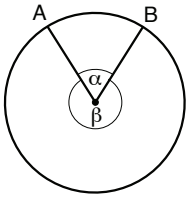
For example, in the figure, angles α and β are inscribed angles, both of which intercept arc AB; therefore, $\alpha = \beta$. An inscribed angle that lies on the diameter of a circle (that is, on an arc whose length equals half the circle's circumference) is a right angle.

Central Angle



A central angle is an angle whose vertex is the center of the circle and whose sides are radii of the circle (in the figure, α is a central angle). A central angle is twice the size of any inscribed angle that intercepts the same arc. For example, in the figure, α is a central angle and β is an inscribed angle, and both intercept the same arc AB. Therefore, $\alpha = 2\beta$.

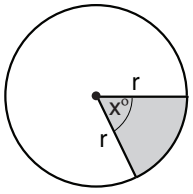
Arc



Two points on the circumference of a circle define two arcs. For example, in the figure, points A and B define two arcs – one corresponding to central angle α and one corresponding to central angle β. The smaller arc AB corresponds to α, the smaller of the two angles.

The length of this arc is $2\pi r \cdot \frac{\alpha}{360}$ (r is the radius of the circle).

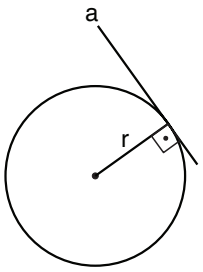
Sector



A sector is the part of a circle bounded by two radii and an arc.
The angle between the two radii is a central angle.

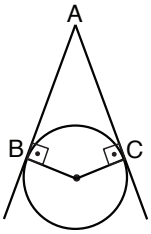
For example, the shaded region in the figure is the sector of a circle with central angle α. The area of the sector of the circle is $\pi r^2 \cdot \frac{x}{360}$

Tangent to a Circle



A tangent is a line that touches the circumference of a circle at only one point, the "point of tangency." The angle formed by the radius and the tangent at that point is a right angle.
For example, in the figure, line segment a is tangent to the circle with radius r.

Two Tangents to a Circle



Two tangents to a circle that intersect at a (particular) point are also called two tangents that originate at one point.

The length of each tangent is the length of the segment that joins the tangents' point of intersection and the point of tangency.

Tangents to a circle that originate at one point are equal in length.
For example, in the figure, A is the point of intersection, B and C are the points of tangency, and AB = AC.

Polygon Circumscribing a Circle

A polygon that circumscribes a circle is a polygon whose sides are all tangent to the circle.

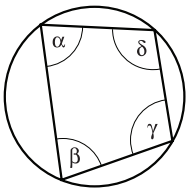
Polygon Inscribed in a Circle

A polygon inscribed in a circle is a polygon whose vertices all lie on the circumference of the circle.

Inscribed Triangle

Every triangle can be inscribed in one and only one circle (that is, a circle with the vertices of the triangle lying on its circumference). If the inscribed triangle is a right triangle, the center of the circle that circumscribes it is the midpoint of the triangle's hypotenuse.

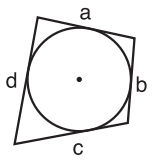
Quadrilateral Inscribed in a Circle



Not every quadrilateral can be inscribed in a circle. The sum of the opposite angles of a quadrilateral inscribed in a circle always equals 180°.
For example, in the quadrilateral in the figure, $\alpha + \gamma = 180°$
$\beta + \delta = 180°$

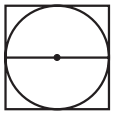
$\beta + \delta = 180°$

Quadrilateral Circumscribing a Circle



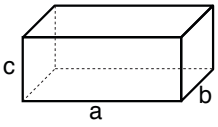
When a quadrilateral circumscribes a circle, the sum of the lengths of each pair of opposite sides is equal.
For example, in the quadrilateral in the figure, $a + c = b + d$.

When a square circumscribes a circle, the length of the side of the square equals the length of the diameter of the circle (see figure).



SOLIDS

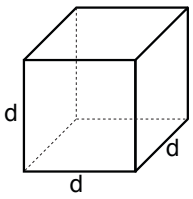
Box (Rectangular Prism) and Cube



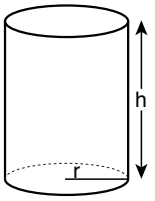
A **box** is a three-dimensional figure with six rectangular faces. The box's three dimensions are its length, width and height (a, b and c respectively, in the figure).

The **surface area** of a box is the sum of the areas of its faces. The surface area of the box in the figure is $ab + ac + bc + ab + ac + bc$ or $2ab + 2ac + 2bc$.

The **volume** (V) of a box is the product of its length, width and height. The volume of the box in the figure is $V = a \cdot b \cdot c$.
A **cube** is a box whose three dimensions are all equal.
All of the faces of a cube are equal in area.
The area of each face of the cube in the figure is d^2.
Therefore, the **surface area** of the cube is $6d^2$.
The **volume** of the cube in the figure is $V = d^3$.



Cylinder



A cylinder is a three-dimensional figure whose two bases are congruent circles on parallel planes. In a right cylinder, the line joining the centers of the circles is perpendicular to each of the bases.

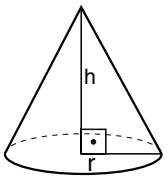
The **lateral surface area** of a cylinder with base radius of length r and with height h is the product of the circumference of the base multiplied by the height, that is, $2\pi r \cdot h$.

The **total surface area** of a cylinder is the sum of the areas of the bases and the lateral surface. The area of each base is πr^2 and the lateral surface area is $2\pi r \cdot h$. Thus, the total surface area is $2\pi r \cdot h + 2\pi r^2 = 2\pi r \cdot (h + r)$.

The **volume** of a cylinder is the product of the area of one of the bases

Cone

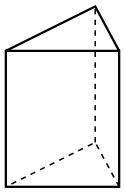
A cone is a figure formed by joining the points on the circumference of a circle with a point outside the plane of the circle.



A **right cone** is formed when the point outside the circle lies on a line that passes through the center of the circle and is perpendicular to the plane of the circle.

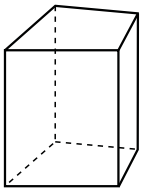
The **volume** of a cone with base radius r and height h is $V = \frac{\pi r^2 \cdot h}{3}$.

Right Prism



A right prism is a three-dimensional figure whose two bases are congruent polygons on parallel planes and whose lateral faces are rectangles. The type of prism is defined by the number of sides of its base. For example, a triangular prism has three-sided bases, a quadrangular prism has four-sided bases, and so on (see figures).

The **height** of a prism is the length of the segment that joins the bases and is perpendicular to them. It is the distance between the bases of the prism.

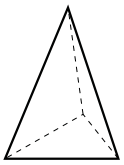


The **lateral surface area** of the prism is the sum of the areas of all the lateral faces. The lateral surface can also be calculated by multiplying the perimeter of the prism's base by its height.

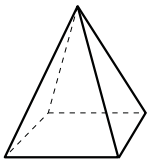
The **total surface area** of a prism is the sum of the lateral surface area and the areas of the two bases.

The **volume** of a prism equals the area of one of the bases multiplied by the height.

Pyramid

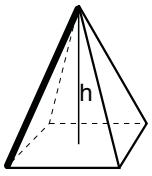


A pyramid is a figure formed by joining the vertices of any polygon to a point outside the plane of the polygon called the vertex or apex of the pyramid. The polygon is called the base of the pyramid.



The lateral faces of the pyramid are triangles. A pyramid is referred to by the number of sides of its base. For example, a triangular pyramid has a three-sided base, a quadrangular pyramid has a four-sided base, and so on (see figure).

The **height** of a pyramid is the line segment extending perpendicularly from the pyramid's vertex to its base. This is the distance between the pyramid's vertex and base (see figure).



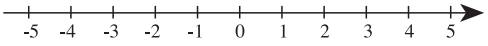
If S is the area of the pyramid's base and h is the pyramid's height, then the pyramid's **volume** is $V = \frac{S \cdot h}{3}$

Edge

The edge of a three-dimensional figure is the straight line formed where two faces meet. For example, a box has 12 edges. The bold line in the pyramid on the previous page is one of its edges.

NUMBER LINE (AXIS)

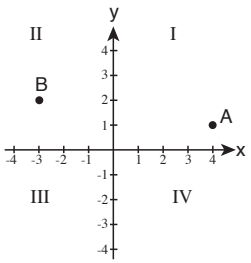
A number line is a geometric representation of the relationships between numbers.



* The numbers along the axis increase to the right.
* The distance between points along the axis is proportional to the difference between the numerical values corresponding to the points. For example, the distance between the points corresponding to values (-4) and (-2) is equal to the distance between the points corresponding to values 3 and 5.

Cartesian Coordinate System

Cartesian coordinates on a coordinate plane have two number lines (axes) that are perpendicular to each other. The horizontal line is called the x-axis and the vertical line is called the y-axis. The numbers along the x-axis increase to the right. The numbers along the y-axis increase upwards.



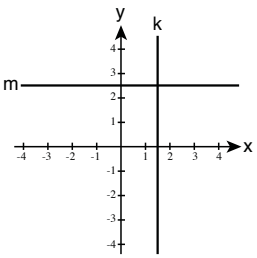
The axes divide the plane into four quadrants, designated in the figure by Roman numerals I, II, III, IV.

Each point in the coordinate plane corresponds to a pair of x and y values. For example, the x-value of point A in the figure is 4, and its y-value is 1. The x-value of point B in the figure is (-3) and its y-value is 2.

It is customary to write the x- and y-values of the points in parentheses, with the x-value to the left of the y-value, as follows: (x , y). For example, point A is written as A(4 , 1) and point B is written as B(-3 , 2).

The x- and y-values for a point are sometimes called the coordinates of that point. The point in the plane corresponding to (0 , 0) is the point of intersection of the two axes and is called the origin.

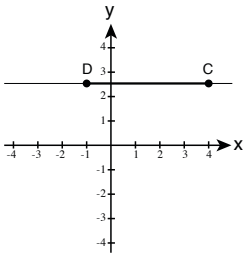
All points on a line parallel to the x-axis have the same y-coordinate, and all points on a line parallel to the y-axis have the same x-coordinate.



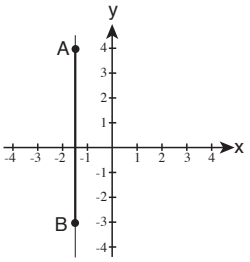
For example, in the figure, line k is parallel to the y-axis. Thus, all of the points on line k have the same x-coordinate.
In the figure, x = 1.5

Line m is parallel to the x-axis. Thus, all of the points on line m have the same y-coordinate.
In the figure, y = 2.5

Only one line can be drawn through any two points on a plane. The part of the line between the two points is called a line segment.

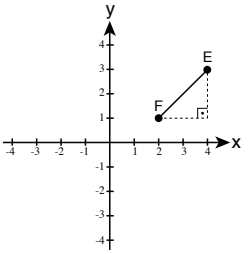


If the line segment is parallel to the x-axis, its length is the difference (in absolute value) between the x-coordinates of the points. For example, in the figure, line segment CD is parallel to the x-axis. The x-coordinate of point C is 4 and the x-coordinate of point D is (-1). The difference between the x-coordinates of the points is 4 – (-1) = 5. Therefore, the length of line segment CD is 5.



If the line segment is parallel to the y-axis, its length is the difference (in absolute value) between the y-coordinates of the points.

For example, in the figure, line segment AB is parallel to the y-axis, the y-coordinate of point A is 4 and the y-coordinate of point B is (-3). The difference between the y-coordinates of the points is 4 – (-3) = 7. Therefore, the length of line segment AB is 7.



If the line segment is not parallel to one of the axes (for example, line segment EF in the figure), its length can be calculated using the Pythagorean theorem: Draw a right triangle such that the segment is the hypotenuse and the legs are parallel to the x-axis and the y-axis. The length of the leg parallel to the x-axis equals the difference between the x-coordinates of points E and F (4 – 2 = 2), and the length of the leg parallel to the y-axis equals the difference between the y-coordinates of points E and F (3 – 1 = 2).

Using the Pythagorean theorem, we can calculate the length of the hypotenuse: ($EF = \sqrt{2^2 + 2^2} = \sqrt{8}$)

QUESTIONS AND PROBLEMS

These questions cover a variety of topics, such as distance problems, work problems, combinatorial analysis and probability, equations, geometry, and so on. Some are word problems which have to be converted into algebraic expressions and the solution given in numerical form; some are non-word problems questions that already have the format of algebraic expressions; and some deal with characteristics of geometric shapes, such as area, volume, angles, and so on. Below are some sample questions, together with solutions and explanations.

Note: The examples in the *Guide* are arranged by type, but this is not the case in the actual exam.

WORD PROBLEMS

1. A driver covered a third of the distance from Haifa to Eilat at a speed of 75 kph. He covered a fifth of the **remaining** distance in one hour, and the rest of the distance at a speed of 80 kph. The distance between Haifa and Eilat is 450 kilometers. If the driver had driven the entire distance at a constant speed, at what speed would he have driven so that the journey from Haifa to Eilat would take exactly the same amount of time?
(kph = kilometers per hour)

(1) 70 kph
(2) 75 kph
(3) 80 kph
(4) None of the above

This question is a mathematical problem presented in word form; therefore the first step is to convert it into algebraic expressions. Start by clearly defining what you are asked to find: the **speed** at which to drive in order to cover the **distance** between Haifa and Eilat in the same amount of **time** that it took the driver in the question. Therefore, this is a distance problem, and the formula $v = \frac{s}{t}$, which connects distance, speed and time can be applied since the distance (s) is given, the time (t) can be calculated, and the speed (v) is the unknown that you have to find. The question provides the information that the distance between Haifa and Eilat is 450 kilometers. The total amount of time needed by the driver to cover the entire distance between Haifa and Eilat can be calculated as follows:
The distance is divided into three segments. The time it took the driver to cover each segment is as follows:

a. A third of the distance is **150 km**, because $450 \cdot \frac{1}{3}$ kilometers equals 150 kilometers. It took the driver **two hours** to cover this segment, because it takes two hours to travel 150 kilometers at a speed of 75 kph $\left(\frac{150}{75} = 2\right)$.

b. A fifth of the remaining distance is **60 kilometers**, since the remaining distance is 450 – 150 = 300 kilometers, and $300 \cdot \frac{1}{5}$ kilometers equals 60 kilometers.
The question provides the information that the driver covered this segment of the journey in **one hour**.

c. The rest of the distance is **240** kilometers, since 450 – 150 – 60 = 240. The driver covered this distance in **three hours**, because it takes three hours to travel 240 kilometers at a speed of 80 kph.

Thus, the journey from Haifa to Eilat took a total of **6 hours** (two hours, plus one hour, plus three hours). By substituting the data into the formula, it is now possible to compute the constant speed at which it is necessary to drive in order to cover 450 km in 6 hours: $t = 6$, $s = 450$, $v = \frac{s}{t} = \frac{450}{6} = 75$.

Thus, the speed is 75 kph, and the correct response is (2).

---

2. At the age of 10 days, a baby elephant eats 5 candies. From this age onwards, its appetite grows, and each day it eats twice the number of candies it ate the previous day.

How many candies will the baby elephant eat at the age of 14 days?

(1) 40
(2) 80
(3) 100
(4) 120

On the tenth day, the baby elephant eats 5 candies. Each day after that it eats twice the number of candies that it ate the previous day. Thus, on the 11th day it eats 10 candies ($5 \cdot 2$), on the 12th day it eats 20 candies ($5 \cdot 2 \cdot 2$), and so on. In general, if n is a positive integer, then on day $(10 + n)$ the baby elephant will eat $5 \cdot 2^n$ candies.

Thus, on the 14th day it will eat 80 candies ($5 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 5 \cdot 2^4 = 80$), and the correct response is (2).

---

3. A restaurant offers 3 different first courses and 4 different main courses. In addition to the first course and the main course, it also offers a choice of soup or dessert. How many different combinations of three-course meals can be put together at this restaurant?

(1) 12
(2) 14
(3) 18
(4) 24

There are **three** possible choices for the first course, and **four** different main courses that can be added to **each** first course chosen. Thus, there are $4 \cdot 3$ different combinations of first courses and main courses. To each of these 12 combinations, either soup or dessert can be added. In other words, there are a total of $12 \cdot 2$ different combinations of the three courses, which equals 24 different possibilities. The correct response is therefore (4).

---

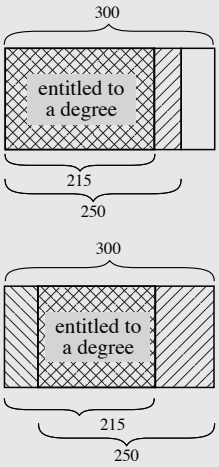
4. Students receive a B.A. degree only after passing all their tests and submitting all their papers. Out of 300 students, 250 passed all their tests and 215 submitted all their papers. How many students received a B.A. degree?

(1) at least 215
(2) no more than 185
(3) exactly 215
(4) at least 165

The question deals with two groups of students: those who submitted all their papers and those who passed all their tests. The students belonging to both groups are the ones entitled to a degree. The amount of overlap between the two groups is not known, but there are two possible extremes. We will use a diagram to illustrate them:

– In a case of **maximum overlap** of the two groups, the maximum number of students would be entitled to a degree. There is maximum overlap when all 215 students who submitted all their papers also passed all their tests. In other words, **at most** 215 students would be entitled to a degree.

– In a case of **minimum overlap** of the two groups, the minimum number of students would be entitled to a degree. When each student not entitled to a degree has only one reason for this, there is minimal overlap. This gives the maximum number of students not entitled to a degree. Fifty students (300 – 250) were not entitled to a degree because they did not pass all their tests, and 85 students (300 – 215) were not entitled to a degree because they did not submit all their papers. In other words, the maximum number of students who would not be entitled to a degree is 50+85=135. Thus, the minimal number of students entitled to a degree is 300 – 135 = 165. In other words, **at least** 165 students are entitled to a degree.



Hence, the number of students entitled to a degree could range from 165 to 215. The correct response is therefore (4).

5. A factory manufacturing at a steady rate produces 20 cars in 4 days. How many cars could 3 such factories produce in 6 days, if they work at the same rate?

(1) 60
(2) 80
(3) 90
(4) 120

This is a work problem. One way of solving such problems is by determining the output of one work unit (in this case one factory) per one time unit (in this case one day), and then multiplying by the number of work units (3 factories) and by the required number of time units (6 days). Thus, if a factory produces 20 cars in 4 days, then it produces 5 cars per day (20 : 4 = 5). Therefore, in 6 days, 3 factories will produce $5 \cdot 6 \cdot 3$ cars, which equals 90 cars. The correct response is (3).

6. There are 20 white hats and 13 black hats in a box. Jack drew 3 black hats in succession from the box, without replacing them.
What is the probability that the fourth hat that he draws at random will also be black?

(1) $\frac{13}{33}$

(2) $\frac{10}{33}$

(3) $\frac{1}{3}$

(4) $\frac{1}{33}$

You have to calculate the probability of Jack drawing a black hat after three black hats are drawn. The probability is the number of black hats remaining in the box divided by the total number of hats (black or white) remaining in the box. After three black hats were drawn from the box, 10 black hats and 20 white hats remained in the box. In other words, out of the 30 hats in the box, 10 are black. Thus, the probability of Jack now drawing a black hat is $\frac{10}{30}$, which is $\frac{1}{3}$.

Therefore, the correct response is (3).

NON-WORD PROBLEMS

1. Given: $2^x \cdot 2^y = 32$
$x + y = ?$

(1) It is impossible to determine from the information given.
(2) 5
(3) 8
(4) 4

According to the laws of exponents, when multiplying powers with the same base, we add the exponents. Therefore, $2^x \cdot 2^y = 2^{x+y}$. According to the information provided, $2^{x+y} = 32$.
In order to find the value of $x + y$, we have to express 32 as a power of base 2. We know that $32 = 2^5$. It follows that $2^{x+y} = 2^5$. When two equal powers have the same base, their exponents are also equal, and we can therefore deduce that $x + y = 5$.
Thus, the correct response is (2).

2. The average of the three numbers x, y, and z is $x \cdot y$.

What does z equal?

(1) $3 \cdot x \cdot y - x - y$
(2) $x \cdot y - x - y$
(3) $3 \cdot x \cdot y + x + y$
(4) $3 \cdot x \cdot y - (x - y)$

An average (arithmetic mean) is the sum of the terms divided by the number of terms.

Thus, the average of x, y, and z equals $\frac{x+y+z}{3}$. Substitute the information in the question into the equation: $\frac{x+y+z}{3} = x \cdot y$; multiply both sides by 3: $x + y + z = 3 \cdot x \cdot y$; and solve for z: $z = 3 \cdot x \cdot y - x - y$.

Thus, the correct response is (1).

---

3. Given: $\frac{a+b}{2} = 9$ and $\frac{c+d+e}{3} = 4$

What is the value of the expression $\frac{a+b+c+d+e}{5}$?

(1) 5
(2) 6
(3) 6.5
(4) 13

Let us simplify the two given equations:

Multiplying both sides of the equation $\frac{a+b}{2} = 9$ by 2 gives us $a + b = 18$.

Multiplying both sides of the equation $\frac{c+d+e}{3} = 4$ by 3 gives us $c + d + e = 12$.

We can now add the results: $a + b + c + d + e = 18 + 12 = 30$, which is the numerator of the expression whose value you are asked to find.

Thus, the value of the expression you are asked to solve is $\frac{30}{5} = 6$, and the correct response is (2).

---

4. Given: $B < C$
$B < D < A$

Which of the following expressions is **necessarily** true?

(1) $C < D$
(2) $D < C$
(3) $C < A$
(4) None of the above expressions is necessarily true.

From the information provided it is impossible to make any deductions about the relationship of C to A and D. For example, the two situations below hold true because they do not contradict the information provided:

(a) $B < C < D < A$
(b) $B < D < A < C$

The expression in (1) is true in situation (a) but not in situation (b). The expression in (2) is true in situation (b) but not in situation (a). The expression in (3) is true in situation (a) but not in situation (b). Thus, each of the expressions is true in certain situations and not true in others. Therefore, none of the expressions is **necessarily** true, and the correct response is (4).

---

5. K is an even number and P is an odd number.
Which of the following statements is <u>not</u> correct?

(1) $P - K - 1$ is an odd number.
(2) $P + K + 1$ is an even number.
(3) $P \cdot K + P$ is an odd number.
(4) $P^2 + K^2 + 1$ is an even number.

Let us examine each of the statements:

(1) The difference between an odd number (P) and an even number (K) is an odd number. Therefore, $P - K$ is an odd number. If we subtract 1 from the odd number that is obtained, we get an even number. Therefore, $P - K - 1$ is an even number, and the statement is **not** correct.

(2) The sum of an odd number (P) and an even number (K) is an odd number. Therefore, $P + K$ is an odd number. If we add 1 to an odd number, we get an even number.
Therefore, $P + K + 1$ is an **even** number, and the statement is **correct**.

(3) The product of an even number and any integer is always an even number; therefore, the product of $P \cdot K$ is an even number. If we add an odd number to the even product, we get an odd number. Therefore, $P \cdot K + P$ is an **odd** number and the statement is **correct**.

(4) The square of an odd number (P^2) is an odd number because it is the product of an odd number multiplied by an odd number ($P \cdot P$), and the square of an even number (K^2) is an even number because it is the product of an even number multiplied by an even number ($K \cdot K$). The sum of the two squared numbers ($P^2 + K^2$) is odd because it is the sum of an odd number and an even number. If we add 1 to this sum, we get an even number. Thus, $P^2 + K^2 + 1$ is **even**, and the statement is **correct**.

In this question, you are asked to mark the statement that is **not** correct, and therefore (1) is the correct response.

GEOMETRY

1. A liquid that fills a rectangular container whose dimensions are 2 cm x 10 cm x 20 cm is poured into a cylindrical container whose base radius is 5 cm.
What height (in cm) will the surface of the liquid reach in the cylindrical container?

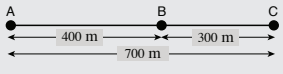
(1) $\frac{16}{\pi}$
(2) $\frac{40}{\pi}$
(3) 8π
(4) 8

The volume of a rectangular container is the product of its three dimensions. Thus, the volume of the liquid in the rectangular container is $2 \cdot 10 \cdot 20$ cubic centimeters, which equals 400 cubic centimeters. After this liquid is poured into the cylindrical container, its volume does not change, but it acquires the shape of the cylinder. You must now find the height of this cylinder whose base radius is 5 centimeters and whose volume is 400 cubic centimeters. This is the height that the water will reach in the cylinder. The formula for the volume of a cylinder is $\pi r^2 \cdot h$, and you have to find h, given that $r = 5$ and the volume is 400 cubic centimeters.
Substitute the numbers into the formula: $\pi \cdot 5^2 \cdot h = 400$, that is, $\pi \cdot 25 \cdot h = 400$. To solve for h, divide the two sides by 25π: $h = \frac{16}{\pi}$. Therefore, the correct response is (1).

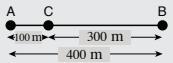
2. The distance between points A and B is 400 meters.
The distance between points B and C is 300 meters.
It follows that the distance between points A and C is **necessarily** -

(1) 100 meters
(2) 500 meters
(3) 700 meters
(4) It is impossible to determine from the information given.

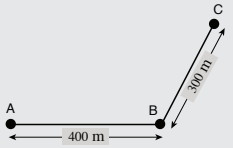
The data in this question does not provide us with information on the relative placement of the three points, and they could be arranged in many ways, such as:



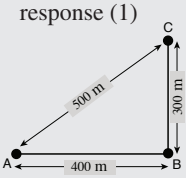
Appropriate for response (3)



Appropriate for response (1)



Not appropriate for any of responses (1) - (3)

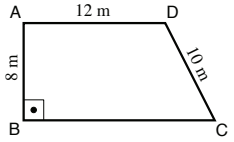


Appropriate for response (2)

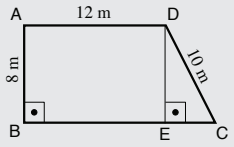
All of these placements are possible, as well as many others, and none of them is necessarily correct. Therefore, the correct response is (4).

3. The accompanying figure shows a right trapezoid (AD || BC). Based on the information in the figure, what is the area of the trapezoid?

(1) 150 m^2
(2) 120 m^2
(3) 108 m^2
(4) 96 m^2



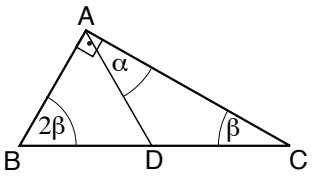
The formula for calculating the area of a trapezoid with bases a and b and height h is $S = \frac{(a+b)\cdot h}{2}$
The figure provides information on the length of the short base and the height (since this is a right trapezoid, the leg perpendicular to the bases is actually the height of the trapezoid). There is no information in the figure about the length of the long base. In order to calculate it, drop a perpendicular from point D to base BC (DE in the figure below). Rectangle ABED is obtained whose length is 12 meters and width 8 meters. Thus, BE = 12 and DE = 8. It remains to calculate the length of EC in order to find the length of the trapezoid's long base. The length of segment EC can be calculated using the Pythagorean theorem for right triangle DEC: $DE^2 + EC^2 = DC^2$.
Solve for EC: $EC = \sqrt{DC^2 - DE^2}$ and substitute the information: $EC = \sqrt{10^2 - 8^2} = 6$. The length of the long base is thus 18 meters (12 meters + 6 meters). After determining the length of the long base, we can compute the area of the trapezoid: $S = \frac{(12+18)\cdot 8}{2} = 120$. The area of the trapezoid is thus 120 m^2, and the correct response is (2).



4. The accompanying figure shows right triangle ABC and isosceles triangle ABD (AB = AD). Based on this information and the information in the figure,

α = ?

(1) 60°
(2) 45°
(3) 30°
(4) 25°



The sum of the angles of a triangle is 180°. Therefore, in triangle ABC we can apply the equation 90° + 2β + β = 180°. Solving the equation, we obtain β = 30°.
We are given the information that triangle ABD is an isosceles triangle.
It follows that ∢ADB = ∢ABD. Since ∢ABD = 2β, then ∢ABD = ∢ADB = 60°.
In triangle ABD, ∢BAD + ∢ABD + ∢ADB equals 180°.
Substituting the values of the angles that were calculated, ∢BAD = 180° – 60° – 60° = 60°.
According to the figure, ∢BAD + α = ∢BAC. Substituting the known values of the angles, we obtain 60° + α = 90°. Thus, α = 30° and the correct response is (3).

5. The accompanying figure shows a circle whose center is O and whose radius is 10 centimeters long.

The shaded region equals $\frac{1}{6}$ the area of the circle.

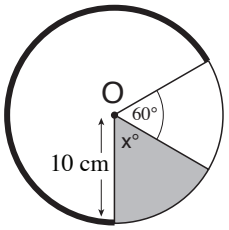
Based on this information and the information in the figure, what is the length (in cm) of the arc shown in bold?

(1) 30π

(2) $\frac{40}{3}\pi$

(3) $\frac{20}{3}\pi$

(4) 20π



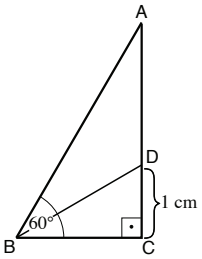
The length of the arc shown in bold is equal to the circumference of the entire circle minus the length of the arc not in bold. To find the length of the arc not in bold, you must determine the size of the central angle that intercepts this arc. This angle consists of 60° (see figure) plus the central angle of the shaded sector. To solve the question, you must determine the size of the central angle of the shaded sector. The central angle of the shaded sector can be found by means of the formula for the area of a sector of a circle $\pi r^2 \cdot \frac{x}{360}$. In this formula, x is the central angle of the sector.

It is given that the area of the shaded sector equals $\frac{1}{6}$ the area of the circle, i.e. $\frac{\pi r^2}{6}$ (since the area of the entire circle equals πr^2). Substitute this information into the formula for the sector of a circle, $\pi r^2 \cdot \frac{x}{360} = \frac{\pi r^2}{6}$, reduce the two sides by πr^2 to obtain $\frac{x}{360} = \frac{1}{6}$ and solve for x: $x = \frac{360}{6} = 60°$. Thus, the size of the angle opposite the arc not in bold is $60° + 60° = 120°$. The length of the arc that intercepts this angle is $2\pi r \cdot \frac{120}{360} = 2\pi r \cdot \frac{1}{3}$, that is $\frac{1}{3}$ of the circumference of the circle. Thus, the length of the complementary arc (shown in bold), which you were asked to find, is $\frac{2}{3}$ of the circumference of the circle.

Substitute the data into the formula for the circumference of a circle: $\frac{2}{3} \cdot 2\pi r = \frac{2}{3} \cdot 2\pi \cdot 10 = \frac{40\pi}{3}$, and the correct response is (2).

6. The accompanying figure shows right triangle ABC.
BD bisects $\sphericalangle ABC$.
Based on this information and the information in the figure,

AD = ?



(1) 1 cm

(2) 2 cm

(3) $\sqrt{3}$ cm

(4) $\frac{4}{\sqrt{3}}$ cm

If we can determine the length of AC, we will be able to subtract the length of CD from it (it is given that it is 1 centimeter) and obtain the length of AD. Triangle ABC is a 30°-60°-90° triangle, because $\sphericalangle ACB = 90°$ and $\sphericalangle ABC = 60°$. In a triangle of this type, $AC = BC \cdot \sqrt{3}$.
From the information that BD bisects $\sphericalangle ABC$, it follows that $\sphericalangle DBC = 30°$; therefore triangle BDC is also a 30°-60°-90° triangle.

In triangle BDC, $BC = CD \cdot \sqrt{3}$. In other words, $BC = \sqrt{3}$ centimeters, and therefore $AC = \sqrt{3} \cdot \sqrt{3} = 3$ centimeters. Subtracting the length of CD from the length of AC, we obtain AD = (3 – 1) = 2 centimeters.
Thus, the correct response is (2).

Another way of solving the problem: $\sphericalangle BAD = 30°$ (based on the sum of the angles in triangle ABC). $\sphericalangle ABD$ also equals 30°, because BD bisects $\sphericalangle ABC$. Therefore, triangle DAB is an isosceles triangle (AD = BD).
Triangle BDC is a 30°-60°-90° triangle, and therefore $BD = CD \cdot 2 = 2 \cdot 1 = 2$ centimeters. Thus, AD = 2 centimeters.

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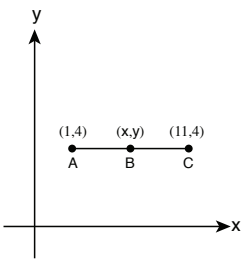
7. In the accompanying coordinate system, point B lies on line segment AC;
AB = BC.



What is the x-coordinate of point B?

(1) 7
(2) 6
(3) 5
(4) 4

Line segment AC is parallel to the x-axis because the y-coordinates of points A and C are equal. Its length can be determined by calculating the difference between the x-coordinates of points C and A. Thus, the length of line segment AC is 10 (11 – 1 = 10). We are given that AB = BC. Therefore, the length of line segment AB is 5 and the x-coordinate of point B is 6 (1 + 5 = 6). The correct response is thus (2).

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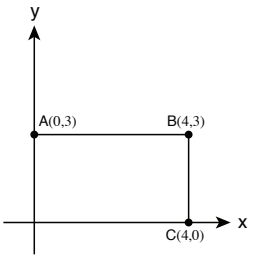
8. What is the area of the rectangle in the figure?



(1) 14
(2) 12
(3) 7
(4) 4

The area of a rectangle is obtained by multiplying its length by its width. Let us calculate the length of the rectangle, which is actually the length of segment AB. Its length equals the difference between the x-coordinates of points A and B, i.e., $4 - 0 = 4$. The width of the rectangle is the length of segment BC, which is equal to the difference between the y-coordinates of points B and C, i.e., $3 - 0 = 3$. Thus, the area of the rectangle is equal to $4 \cdot 3 = 12$; the correct response is (2).

QUESTIONS ON GRAPH AND TABLE COMPREHENSION

These questions involve information appearing in a graph or table. The graph or table is usually accompanied by a short explanation. In a table, the numerical data are arranged in columns and rows, whereas in a graph they are presented in graphic form, such as a curve, bar chart and so on. The questions are of two main types: questions involving **the reading of data**, in which you are asked to find information appearing in the graph or table, and **inference questions**, in which you are asked to make various inferences from the data appearing in the graph or table. Below are samples of a graph and a table, followed by questions and explanations.

GRAPH COMPREHENSION

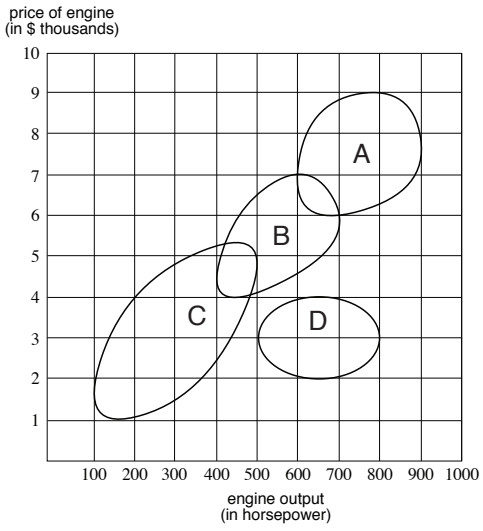
INSTRUCTIONS:

Study the graph below and answer the questions that follow.

EXPLANATION OF THE GRAPH:

The accompanying graph presents information on 4 different technologies used for producing a certain type of engine.

Each technology is represented by a letter (A–D) and by a closed area. All points within that area and on its perimeter represent the range of prices and horsepowers that are possible for that technology. For example, using technology A, a 750-horsepower engine can be manufactured at a price of $6,000-$9,000. In other words, it is possible to manufacture an engine of this type at a price of $8,500, but it is not possible to manufacture an engine with the same horsepower at a price of $5,000.



Note:

1. Technologies A and B have an area that is common to both, as do technologies B and C.
2. In answering each question, disregard the information appearing in the other questions.

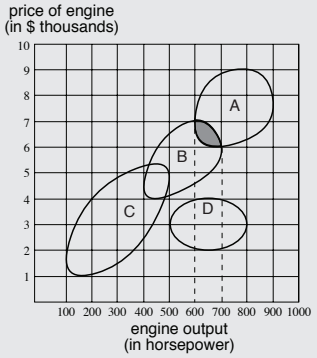
QUESTIONS AND EXPLANATIONS:

1. What is the range of engine outputs (in horsepower) that can be obtained using both technology A and technology B?

(1) 400–500
(2) 500–600
(3) 600–700
(4) None of the above

In order to solve graph comprehension questions, you must "translate" the question into the terms of the graph and then find the necessary information in the graph. The question deals with engines that can be manufactured using technology A as well as technology B. These engines are depicted in the graph by the areas of these two technologies that overlap. The overlapping area is the shaded region in figure I. You must now find the range of outputs of these engines. Since the horizontal axis represents the engine outputs, the boundaries of the overlapping area that lie on the horizontal axis represent the range of outputs of engines manufactured using both technologies. In the illustration, the area where A and B overlap is bounded on the horizontal axis by 600 and 700 horsepower. In other words, engines with an output ranging from 600 to 700 horsepower can be produced using technology A as well as technology B, and the correct response is (3).

Figure I

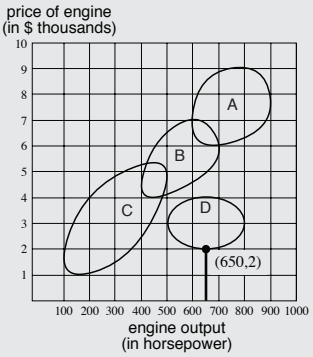


2. There is talk of producing an engine with an output of 650 horsepower. What is the minimum price (in dollars) at which it can be manufactured?

(1) 1,000
(2) 2,000
(3) 1,500
(4) 2,500

In this question, the starting point is an engine with an output of 650 horsepower. As stated, engine output is represented on the horizontal axis of the graph. Therefore, the first step is to locate the specified output (650 horsepower) on the horizontal axis and then to find the minimum price of an engine with this output. Draw a vertical line from the point on the horizontal axis that represents 650 horsepower to a point of contact with one of the technology areas (see figure II). The lowest point of contact with one of the technology areas will represent the lowest possible price for an engine with an output of 650 horsepower. The **lowest** point of contact intercepts the boundary of the area representing technology D. This point represents a price of $2,000 on the vertical axis, and that is therefore the minimum price of an engine with the desired output. Thus, the correct response is (2).

Figure II

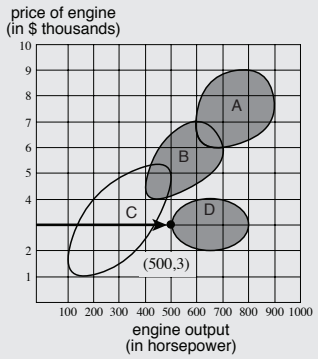


3. Due to a technical problem, it is no longer possible to produce engines using technology C. What would now be the minimum output (in horsepower) of an engine priced at $3,000?

(1) 500
(2) 400
(3) 300
(4) It is impossible to produce an engine of this kind.

Since the problem states that engines can no longer be produced using technology C, we can ignore this technology area and relate only to the other technology areas (the shaded regions in figure III). The starting point of this question is an engine whose price is $3,000. The vertical axis represents engine prices, and we will therefore begin with the vertical axis, from the point that represents a price of $3,000. The further we move to the right of this point, the greater the output. Thus, if we draw a horizontal line from the point on the vertical axis that represents a price of $3,000 (see figure III), the first point of contact with one of the technology areas will represent the **lowest** possible output for an engine priced at $3,000. The first point of contact with one of the shaded technology areas is with technology area D. This point lies on the vertical line representing 500 horsepower on the horizontal axis, which at present is the minimum output for an engine priced at $3,000. Therefore, the correct response is (1).

Figure III



4. A certain company is not allowed to produce engines with an output of over 550 horsepower. Which technologies can the company use to manufacture its engines?

(1) C only
(2) B and C only
(3) C and D only
(4) B, C and D only

The first step is to find the point on the horizontal axis that represents an output of 550 horsepower. Draw a vertical line from this point up the entire height of the graph (see figure IV). All engines to the right of this line have an output of **over** 550 horsepower, and all engines to the left of this line have an output of **less** than 550 horsepower. The company referred to in the question is only allowed to manufacture engines whose output is less than 550 horsepower. It can therefore use only those technologies whose areas, or part of whose areas, are to the **left** of the line. To the left of the line that we have drawn we find the entire area of technology C, half the area of technology B, and part of the area of technology D. Thus, the company can use technologies B, C and D for manufacturing engines with an output of less than 550 horsepower, and the correct response is (4).

Figure IV

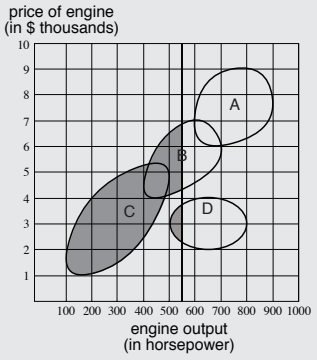


TABLE COMPREHENSION

INSTRUCTIONS:

Study the table below and answer the questions that follow.

EXPLANATION OF THE TABLE:

The table below contains data on 10 major companies belonging to different industries. The companies' names are designated by letters A through J, and appear in the first column of the table.

For each company, the table shows the industry to which it belongs, sales volume, profits, asset value, and number of workers.

For example, Company E deals in electronics, employs 400,000 workers, and its asset value is $90 million. Company E 's sales volume totaled $70 billion this year, and its profits amounted to $6,000 million.

The table also contains data on the percentage of change in sales and profits compared with last year.

An example of how to calculate percentage of change: If a certain company's sales volume totaled $40 billion last year, and this year the volume increased to $50 billion, then the percent of change compared to last year is 25%.

		Sales		Profits			
Name of company	Industry	Sales (in $ billions)	Percentage of change compared to last year	Profits (in $ millions)	Percentage of change compared to last year	Asset value (in $ millions)	Number of workers (in thousands)
A	Automobile	125	-1.5	-2,000	-150	180	750
B	Oil	110	25	6,500	0	100	150
C	Oil	105	22	5,000	40	390	100
D	Automobile	100	1.5	900	-80	180	350
E	Electronics	70	9	6,000	60	90	400
F	Automobile	65	7	3,000	15	55	100
G	Metals	60	25	1,000	-20	not given	400
H	Oil	60	20	3,000	-15	60	120
I	Oil	55	15	2,000	7	40	70
J	Electronics	50	6	4,500	10	150	300

Note: In answering each question, disregard the data appearing in the other questions.

QUESTIONS AND EXPLANATIONS

1. Which of the companies in the automobile industry has the **lowest** asset value?

(1) A
(2) D
(3) F
(4) A and D

This question requires you to read data. You have to locate the place in the table that shows the industry to which the company belongs and the place in the table that indicates its asset value. You then have to compare the asset value of all of the companies in the automobile industry, and find the lowest value. The second column from the left lists the industry of each company. It shows that companies A, D and F are the only companies in the automobile industry. Examining the asset value (second column from the right) of each of these companies, we see that the asset value of Company A is $180 million, which is also the asset value of Company D. The asset value of Company F is $55 million. Therefore, Company F has the lowest asset value of the companies in the automobile industry, and the correct response is (3).

---

2. Assuming that profits are divided equally among all the workers in a company, which of the following companies shows the **greatest** profit per individual worker?

(1) H
(2) B
(3) C
(4) F

The amount of profit per individual worker is not specified in the table but can be calculated from the information that does appear in it. The table shows the profit and number of workers of each company. The profit per individual worker of a particular company is the total profit of that company divided by the number of workers.

The profits of each company are given in millions of dollars, and the number of workers in thousands. Therefore, we can compare companies by relating to the numbers appearing in the table, and present the profit per worker as follows:

H	B	C	F
$\frac{3{,}000}{120}$	$\frac{6{,}500}{150}$	$\frac{5{,}000}{100}$	$\frac{3{,}000}{100}$

Comparing Companies F and H, we see that the same profit (3,000) is divided among fewer workers in Company F (100 < 120), and therefore the profit per worker is greater in Company F.
Comparing Companies F and C, we see that they have the same number of workers (100), but Company C has greater total profits (5,000 > 3,000), and therefore the profit per worker is greater for Company C.

Companies B and C are different both in terms of number of workers and in terms of total profits, and are therefore more difficult to compare. The number of workers in Company B is 1.5 times the number of workers in Company C (150 vs. 100); if the total profit of Company B were also 1.5 times greater than the profit of Company C, the profit per worker would be the same for both companies, that is, had the profit been $5{,}000 \cdot 1.5 = 7{,}500$; but the total profit of Company B is smaller than this amount ($6{,}500 < 7{,}500$). Thus, the profit per worker of Company B is smaller than the profit per worker in Company C. Hence, Company C has the greatest profit per individual worker, and the correct response is (3).

Another way of comparing Companies B and C:

In Company C, the profit per individual worker is $50 \left(\frac{5{,}000}{100} = 50\right)$

while in Company B it is less than $50 \left(\frac{6{,}500}{150} < 50\right)$ Therefore, the profit per individual worker in Company C is greater.

Another way of comparing the fractions that represent the profit per worker in each of the companies is by reducing them and converting them to a common denominator.

3. What was Company G's sales volume last year (in $ billions)?

(1) 48
(2) 50
(3) 64
(4) 76

This information does not appear in the table, but can be calculated using this year's sales volume (third column from the left) and the percent of change compared with last year (fourth column from the left). The table shows that Company G's sales this year amounted to $60 billion and that its sales increased by 25% over last year. In other words, its sales volume last year is a value which, if 25% is added to it, gives 60. This can be expressed in the following equation (where x is last year's sales volume): $x + \frac{25}{100} \cdot x = 60$

Simplifying the equation: $\frac{125}{100} \cdot x = 60$

Solving for x: $x = 60 \cdot \frac{100}{125}$, $x = \frac{60 \cdot 100}{125}$

Reducing the numerator and denominator of the fraction by 25: $x = 60 \cdot \frac{4}{5} = 48$

In other words, last year's sales volume was $48 billion, and the correct response is (1).

4. The sales of how many companies totaled over $100 billion last year?

(1) 1
(2) 2
(3) 3
(4) 4

This question also deals with last year's sales volume; thus, here too, we have to use the information provided about this year's sales volume and the percent of change compared with last year. We have to find companies whose sales last year amounted to more than $100 billion, but to do so it is not necessary to calculate each company's exact sales volume for last year. It is sufficient to know whether the sales volume was greater or smaller than this amount.
Companies E through J can easily be eliminated: Total sales for each of them this year amounted to less than $100 billion, and each had a positive percent of change compared to last year. In other words, this year's sales were greater than last year's, and therefore their volume of sales last year was obviously under $100 billion.

We will examine Companies A through D in greater detail. Company D's sales totaled $100 billion this year. Since its sales have increased over last year's sales (the percent of change was positive), last year's sales clearly totaled less than $100 billion.
Company C's sales this year amounted to $105 billion. If its sales last year had been over $100 billion, the change in sales would have been less than $5 billion, meaning the percent of change would have been less than 5% (since $5 billion is 5% of $100 billion). But since the change in sales was 22%, its sales last year clearly totaled less than $100 billion. We can eliminate Company B in the same way: Company B's sales totaled $110 billion this year. Had its sales last year amounted to more than $100 billion, the percent of change in its sales would have been less than 10%. However, it showed a 25% change in sales, and therefore last year's sales totaled less than $100 billion.

Company A's sales this year totaled $125 billion. Its sales decreased by 1.5% compared with last year. It follows that Company A's sales last year were over $125 billion. Thus, Company A is the only company whose sales last year totaled over $100 billion, and the correct response is (1).

QUANTITATIVE COMPARISONS

These questions require you to compare two quantities and determine which, if either, is greater. Sometimes, in addition to the two quantities, further information is given that is essential for answering the question. As in the sub-section on Questions and Problems, here too the questions cover a variety of areas: algebra, geometry (angle size, area and so on), calculating combinatorics and probabilities, and the like. As you will see in the wording of the instructions for the quantitative comparison questions, the response key is a uniform one for all of the questions in this sub-section, and it appears at the beginning of the sub-section instead of separately for each question.

INSTRUCTIONS:

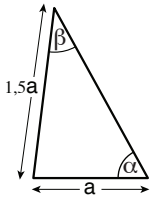
The following questions consist of pairs of quantities. In each question, one quantity appears in column A and a second quantity appears in column B. In the third column, additional information about the quantities in columns A and B is sometimes provided. **This information may be essential for answering the question.** Compare the two quantities, using the additional information (if provided), to determine which one of the following is true:

(1) the quantity in column A is greater
(2) the quantity in column B is greater
(3) the two quantities are equal
(4) there is not enough information to determine the relationship between the two quantities

For each question, mark the number of the answer you have chosen in the appropriate place on the answer sheet.

EXAMPLES AND EXPLANATIONS:

1.

Column A	Column B	Additional Information
α	β	

To solve the question, you must analyze the additional information. The figure shows that angle α is opposite the side whose length is 1.5a, and angle β is opposite the side whose length is a. In any triangle, if side 1 is longer than side 2, the angle opposite side 1 is larger than the angle opposite side 2. Therefore, angle α, which is opposite the side whose length is 1.5a, is larger than angle β, which is opposite the side whose length is a, and the correct response is (1).

2.

Column A	Column B	Additional Information
a	$\frac{a^3 - ab^2}{(a-b)\cdot(a+b)}$	$a \neq \pm b$

The additional information in this question prevents a situation whereby the denominator of the expression in Column B equals 0 (as this would create an undefined expression), but it does not directly help solve the question. For an easy comparison of the two expressions, the expression in Column B must be simplified.

Numerator: Factor out a: $(a^3 - ab^2) = a(a^2 - b^2)$.

Denominator: According to the contracted multiplication formula, $(a+b)\cdot(a-b) = a^2 - b^2$

The expression in Column B can be presented as $\frac{a\cdot(a^2-b^2)}{a^2-b^2}$.

Reduce the resulting fraction by dividing both numerator and denominator by $(a^2 - b^2)$. This is possible since $a \neq \pm b$, and therefore $(a^2 - b^2) \neq 0$: $\frac{a\cdot(a^2-b^2)}{a^2-b^2}$. The expression is equal to a.

Thus, the quantity in Column B is equal to the quantity in Column A, and the correct response is (3).

3.

Column A	Column B	Additional Information
The average of: $0.03\ ,\ \left(\frac{1}{2}\right)^a\ ,\ \frac{2}{5}$	0.4	a is a positive integer.

The value of the expression in Column A depends on the size of a. To make it possible to compare the two quantities, we must look for the extreme cases, in which the expression takes its maximum or minimum value. Based on the additional information, a is a positive integer, i.e., its minimum value is 1.

The fraction $\left(\frac{1}{2}\right)^a$ becomes progressively smaller as the value of a becomes larger. Therefore, the expression in Column A has its **maximum** value when $a = 1$. We will calculate the maximum value of the average in Column A (where $a = 1$), and compare it to the expression in Column B:

Substituting $a = 1$ in column A, we obtain $0.03\ ,\ \left(\frac{1}{2}\right)\ ,\ \frac{2}{5}$.

Expressing these terms as fractions with a common denominator: $\frac{3}{100}\ ,\ \frac{50}{100}\ ,\ \frac{40}{100}$

Calculating the average: $\left(\frac{3}{100} + \frac{50}{100} + \frac{40}{100}\right) : 3 = \frac{93}{100} : 3 = \frac{93}{100}\cdot\frac{1}{3} = \frac{31}{100}$

The average that is obtained $\left(\frac{31}{100}\right)$ is smaller than the quantity in Column B ($\frac{40}{100}$). This is the maximum possible average in Column A. Therefore, for any value of a, the quantity in Column B is greater than the quantity in Column A, and the correct response is (2).

4.

Column A	Column B	Additional Information
The sum to be paid for a product with starting price C, to which 15% VAT is added, followed by a 20% discount on the entire sum	The sum to be paid for a product with starting price C, after a 5% discount	$0 < C$

To compare the quantities in the two columns, each must be represented as an algebraic expression.

In order to calculate the quantity in Column A, add 15% to C: $C + \frac{15}{100}C = \frac{100C + 15C}{100} = \frac{115}{100}C$.

Subtract 20% from the resulting value:

$\frac{115}{100}C - \frac{20}{100} \cdot \frac{115}{100}C = \frac{115}{100}C - \frac{1}{5} \cdot \frac{23}{20}C = \frac{115}{100}C - \frac{23}{100}C = \frac{92}{100}C$

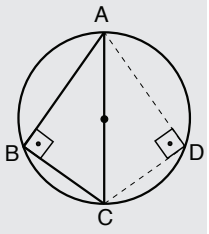
In order to calculate the quantity in Column B, subtract 5% from C: $C - \frac{5}{100}C = \frac{95}{100}C$.

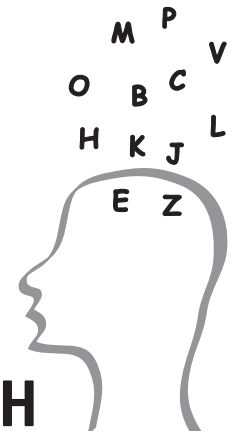
Since we are provided with the additional information $0 < C$, the quantity in Column B is greater than the quantity in Column A, and the correct response is (2).

5.

Column A	Column B	Additional Information
Twice the area of triangle ABC	The area of the circle circumscribing triangle ABC	ABC is a right triangle.

Drawing a diagram is helpful for solving this question:
It is known that any inscribed angle lying on a diameter of a circle equals 90°, and vice versa, any inscribed 90° angle lies on a diameter of a circle. Therefore, in a right triangle inscribed in a circle (triangle ABC), the hypotenuse (AC) is the diameter of the circle. We can see in the figure that if we double the triangle (triangle ADC is the mirror image of triangle ABC), the sum of the areas of the two triangles is smaller than the area of the circle. In other words, the quantity in Column B is greater than the quantity in Column A, and the correct response is (2).





ENGLISH

The English sections test your proficiency in the English language as reflected, among other things, in your vocabulary and your ability to read and to understand complex sentences and texts on an academic level.

At the beginning of each English section you will find instructions, including information on the number of questions that appear in the section and the amount of time you have in which to answer them. For example:

This section contains 29 questions.
The time allotted is 25 minutes.

The following section contains three types of questions: Sentence Completion, Restatement and Reading Comprehension. Each question is followed by four possible responses. Choose the response **which best answers the question** and mark its number in the appropriate place on the answer sheet.

The Sentence Completion and Restatement questions are arranged in ascending order of difficulty, while the Reading Comprehension questions appear in the order in which the subject matter appears in the text.

General explanations about the three types of questions in the English section, along with sample questions and explanations regarding how to solve them, appear below.

SENTENCE COMPLETIONS

These questions consist of sentences with a word or set of words missing from each. You must complete the sentence using the most appropriate word or set of words. This type of question tests your English vocabulary and your ability to understand the internal logic of a sentence.

To solve these questions, pay attention to sentence structure, use of verb tenses, and conjunctions. It is also important to understand the relationship between the parts of the sentence and to pay attention to grammatical cues. For example, words such as "although," "despite" and "but" indicate that a qualification or contrast is being expressed, while words such as "also" and "in addition to" indicate that something is being added.

No single approach will apply to all questions of this type; each question must be examined individually. However, you should always read the entire sentence before examining the possible responses. You can try to fill in the missing part with your own word (or words), and then read the possible responses, and see if one of them has the same meaning as the word that you thought of. After selecting the response, read the entire sentence to make sure that it is logical and coherent.

Instructions:

This part consists of sentences with a word or words missing in each. For each question, choose the answer **which best completes the sentence**.

1. Most psychologists today believe that adopted children should be permitted and even _____ to learn about their biological parents.

(1) encouraged
(2) endured
(3) enriched
(4) enclosed

The most important part of the sentence is the pair of words "and even," which indicate that the missing word is not meant to contradict the word "permitted," but rather to reinforce and supplement it. In other words, not only should adopted children be permitted to learn about their biological parents, but they should also be _____ to do so. The most logical completion of the sentence would be, for example, "helped" or "encouraged." Indeed, the correct response is (1). Nevertheless, it is important to examine all of the possible responses before choosing one of them.

Response (2), "endured," would not support or supplement the first part of the sentence, as implied by the words "and even." It is therefore not the correct response.

The word "enriched" in response (3) would give the sentence the following meaning: "... adopted children should be permitted to learn about their biological parents, and they should even be enriched to do so." This makes no sense, and therefore (3) is not the correct response.

The word "enclosed," response (4), would make no sense, either: "... they should even be enclosed to do so."

Thus, response (1) best completes the sentence.

2. Olive trees are noted for their _____ ; some are over 2,000 years old.

(1) longevity
(2) abundance
(3) compassion
(4) magnitude

The most noticeable feature of this sentence is that it consists of two parts separated by a semicolon. The key to choosing the correct response lies in understanding the relationship between the two parts of the sentence. We can infer from the sentence structure that the first part refers to a characteristic for which olive trees are noted, while the second part illustrates, or gives an example of, this quality.

We can infer from the second part of the sentence, "some are over 2,000 years old," that the characteristic mentioned in the first part of the sentence must be related to great age. The only response in any way related to great age is the word "longevity," response (1).

Examining the other possible responses makes us aware of how important it is to ensure that the chosen response conforms to the logic of the sentence. We can certainly imagine a sentence describing an abundance of olive trees, but the concept of abundance would not be illustrated by noting how old some olive trees are.

Response (3), "compassion," is a word that applies to people, not trees. This, too, is therefore not the correct response.

Response (4), "magnitude," is also unrelated to age. Therefore, this is not the correct response, either.
Response (1) best completes the sentence, and is therefore the correct response.

3. Real estate prices have soared recently and, _____ , few people can now afford to buy an apartment.

(1) regardless
(2) otherwise
(3) consequently
(4) remarkably

This question, too, requires that we examine the internal logic of the sentence in order to choose the correct response. This is actually a compound sentence constructed from two sentences. The first is "Real estate prices have soared recently," and the second, " few people can now afford to buy an apartment." They are separated by a blank. Presumably, the missing word describes the relationship between the two parts of the sentence. The use of the word "and" provides an additional clue: there is a connection between the two sentences and they do not contradict each other. If we reexamine the entire sentence, we see that the only logical connection between the two parts of the sentence is one of cause and effect; the second part of the sentence is the outcome of the first. Thus, the price of real estate has soared, and as a result few people can now afford to buy an apartment. The word we are looking for should express this connection. The only suitable possibility is the word "consequently," response (3). Therefore, (3) is the correct response. However, as we have said, it is important to examine the other possibilities before deciding on the correct response.

Response (1), which states that few people can afford to buy an apartment "regardless" of the soaring prices would create an illogical statement, because the fact that few people can now afford to buy an apartment is directly related to the soaring prices. Therefore, response (1) is not correct.

The word "otherwise," response (2), also produces an illogical statement in terms of the relationship between the two parts of the sentence: "Real estate prices have soared recently and "otherwise" few people can now afford to buy an apartment." Thus, (2) is not the correct response.

Since there is nothing "remarkable" about the fact that few people can afford to buy an apartment after real estate prices have soared, there is no logic to this sentence, and therefore (4) is not the correct response.

Response (3) is thus the most suitable response.

---

4. The abacus – a counting _____ invented thousands of years ago – is still widely used in Asia.

(1) barrier
(2) hazard
(3) outlet
(4) device

You do not have to know the meaning of "abacus" to answer this question. It is enough if you understand that the word refers to something used for counting. The only word that is suitable is "device," response (4). However, as we have said, you should examine all the possible responses before deciding which response is correct.

Response (1) is incorrect, as "counting barrier" is a meaningless phrase.

Response (2) is also incorrect, as a "counting hazard" makes no sense here.

A "counting outlet" would not have any logical meaning, either. Therefore, response (3) is also incorrect.

Thus, response (4) best completes the sentence.

---

5. After an American firm called Peapod _____ the sale of groceries over the Internet, many other companies began to offer the service.

(1) pioneered
(2) repaired
(3) disturbed
(4) treasured

It is particularly important to pay attention to the sentence structure, which indicates that after one firm took a certain action, other firms began doing the same. In other words, Peapod was first. We want to find a word that expresses the concept of introducing something new or doing something that has not been done before, after which others do the same thing. The only word that expresses this idea is "pioneered," response (1).

Here, too, we will examine the other possible responses. Response (2): It makes no sense to say that a company "repaired" the sale of groceries.

Response (3): In the present context, there is no logic to the statement that an American firm "disturbed" the sale of groceries, which resulted in other companies following suit and offering a similar service.

Response (4): the sale of products is not something that is "treasured". Therefore, (4) is not the correct response.

Response (1) thus best completes the sentence.

6. Many insects and reptiles _____ new surroundings by changing their coloring or appearance.

(1) assist in
(2) collide with
(3) descend from
(4) adapt to

First, it is important to realize that the second part of the sentence, "by changing..." describes how "many insects and reptiles _____ new surroundings." Another important word, "new," indicates that the missing word refers to some kind of change in reaction to new surroundings. The word we are looking for should express the concept of fitting into or becoming accustomed to, which is why "adapt to," response (4), is the correct response. However, as always, it is important to examine all of the responses before deciding which one is correct.

Response (1): It makes no sense to say that insects and reptiles "assist in" new surroundings by changing their coloring. This is, therefore, not the correct response.

Response (2): Here, too, it makes no sense to say that insects and reptiles "collide with" new surroundings by changing their coloring.

Response (3): It makes no sense to say that insects and reptiles "descend from" new surroundings. This is therefore not the correct response.

Thus, response (4) best completes the sentence.

RESTATEMENTS

These questions are designed to test your ability to understand sentences in English.

Instructions:

This part consists of several sentences, each followed by four possible ways of restating the main idea of that sentence in different words. For each question, choose the one restatement **which best expresses the meaning of the original sentence**.

In order to answer the questions, read the original sentence carefully and pay close attention to key words and the relationships between them, as well as to verb tenses.

1. Analysts claim that an increase in exports is responsible for Poland's economic recovery.

(1) Analysts suggest that growth in Poland's economy can be achieved by increasing exports.
(2) Analysts believe that only if Poland's economy recovers will the country be able to export large amounts of goods.
(3) According to analysts, the improvement in Poland's economy is the result of increased exports.
(4) According to analysts, the recent growth in Poland's economy will encourage the export of more goods.

Several aspects of the original sentence are worth noting. First, the sentence implies that Poland is now in a state of economic recovery. Secondly, the use of the word "recovery" implies that this state was preceded by a period of economic decline. Finally, the sentence states that according to analysts, an increase in imports is "responsible" for the economic recovery.

According to response (1), analysts suggest that economic growth might be achieved in Poland by increasing exports. As in the original sentence, here too, the state of Poland's economy is connected to an increase in exports. But there is an important difference between the two sentences. In the original statement, the increase in exports is what led to Poland's economic recovery. In other words, Poland is already in a state of economic recovery. Response (1), on the other hand, suggests how Poland can achieve economic growth (in the future), and not how this growth was achieved. Therefore, response (1) is not the correct response.

In response (2), analysts believe that only if Poland's economy recovers will the country be able to export large amounts of goods. Here, too, as in the original sentence, there is a connection between Poland's economic recovery and exports. But in the original sentence, an increase in exports is the reason for Poland's economic recovery, whereas in response (2), this relationship is the opposite: exporting is the result of the recovery and not its cause. Furthermore, according to response (2), Poland has not yet made an economic recovery. Therefore, (2) is not the correct response.

Response (3) states that according to the analysts, the improvement in Poland's economy is the result of increased exports. Like the original sentence, this statement implies that the state of Poland's economy has improved. Moreover, the analysts note that the reason for this is the increase in exports. Therefore, response (3) appears to be the correct response. But note that it is important to read all of the responses before deciding which is correct.

Response (4) states that according to analysts, the recent growth in Poland's economy will encourage the export of more goods. Like the original sentence, this sentence states that Poland's economy has improved. However, this sentence says that the improvement will lead to an increase in exports, whereas the original statement presents the opposite situation: the increase in exports is what led to economic recovery. Therefore, response (4) is not the correct response.

Response (3) is thus closest to the content of the original statement and is, therefore, the correct response.

2. Early nineteenth-century German writer Bettina von Arnim was virtually alone in her admiration for the works of her contemporary, the great poet Friedrich Hölderlin.

(1) Bettina von Arnim thought Friedrich Hölderlin's work was the only early nineteenth-century poetry worthy of admiration.
(2) Almost no one in the early nineteenth century appreciated Friedrich Hölderlin's poetry, except for German writer Bettina von Arnim.
(3) Hölderlin and von Arnim were considered by their contemporaries to be the greatest German writers of the early nineteenth century.
(4) Von Arnim admired Hölderlin's poetry because it expressed the loneliness felt by many early nineteenth-century German writers.

The words "her contemporary" in the original sentence indicate that the two authors lived at the same time: in the early nineteenth century. The sentence also says that few people at that time admired the poetry of Friedrich Hölderlin, and that Bettina von Arnim was one of these few.

According to response (1), Bettina von Arnim thought that Friedrich Hölderlin's poetry was the only poetry in the early nineteenth century worthy of admiration. Since this statement mentions von Arnim's admiration of Hölderlin's works, it seems to be the correct response. But unlike the original sentence, this sentence states that von Arnim admired only Hölderlin's works. Furthermore, response (1) does not mention other people's opinions of Hölderlin's poetry. Therefore, response (1) is incorrect.

Response (2) states that almost no one in the early nineteenth century appreciated Friedrich Hölderlin's poetry except for German writer Bettina von Arnim. In other words, Bettina von Arnim, an early nineteenth-century writer, was among the few people of her time who admired Hölderlin's poetry. This was also stated in the original sentence. Thus, response (2) appears to be the correct response. However, as already mentioned, it is important to read all of the possible responses before deciding.

Response (3) states that Hölderlin and von Arnim were considered by their contemporaries to be the greatest German writers of the early nineteenth century. In other words, according to this response, Hölderlin and von Arnim were admired in their day. But according to the original sentence, von Arnim was virtually the only one at that time who admired Hölderlin's works. Moreover, the original statement says nothing about admiring von Arnim's works, only Hölderlin's. Therefore, response (3) is incorrect.

Response (4) states that von Arnim admired Hölderlin's poetry because it expressed the loneliness felt by many early nineteenth-century German writers. Like the original statement, response (4) mentions that von Arnim admired Hölderlin's poetry. But something entirely new appears here – the reason for this admiration. According to response (4), von Arnim admired Hölderlin's poetry because it expressed the loneliness felt by many German writers in the early nineteenth-century. Note that the original sentence does not give a reason for von Arnim's admiration of Hölderlin's poetry. While the original statement contains the word "alone," which is related to the word "loneliness," these two words have different meanings. In the original statement, it refers to

the fact that von Arnim was virtually "alone" in her admiration of Hölderlin's poetry, whereas in response (4) it refers to the "loneliness" felt by German writers at that time. Response (4) is a good example of the importance of noting the precise meaning of key words in the original sentence. Thus, (4) is not the correct response.

Response (2) most closely expresses the meaning of the original sentence and is thus the correct response.

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3. Three wilderness areas were recently designated as U.S. national monuments, thereby protecting them from mining.

(1) Mining is now allowed in three areas that were once protected as U.S. national monuments.
(2) It has been suggested that three areas formerly used for mining be designated as U.S. national monuments.
(3) Three U.S. national monuments have recently been built in areas protected from mining.
(4) Mining will not be permitted in three areas that have just been named U.S. national monuments.

It is always important to pay attention to the tenses of the verbs in the sentence. Since the words "were designated" are in the past tense, the sentence is stating that the designation has already taken place. In addition, the sentence implies that there is a connection between the designation and the fact that these areas are "protected from mining" (i.e., that mining is not permitted there). Even if you are not completely sure of the meaning of the conjunction "thereby," it can be understood from the context that mining is not permitted in areas designated as national monuments.

Response (1) states that mining is now allowed in three areas. The original sentence, however, says the opposite: mining is not allowed. Furthermore, response (1) states that these areas had been protected in the past because they were national monuments, whereas the original statement says that these areas were designated as national monuments only "recently". Therefore, response (1) is incorrect.

Response (2) states that the designation as national monuments has been suggested. But according to the original sentence, this designation has already taken place. Like the original sentence, response (2) mentions mining, but it refers to mining that was done in these areas in the past, whereas the original sentence implies that mining will be forbidden in the future. Moreover, it makes no mention of whether or not these areas were actually used for mining in the past. Therefore, response (2) is not the correct response.

Response (3) like the original sentence, mentions areas protected from mining. But according to the original sentence, the areas and the national monuments are one and the same, that is, the areas themselves were given the status of national monuments, and as such, mining there is forbidden. However, according to response (3), national monuments were "built" in areas which were already protected from mining. Therefore, response (3) is incorrect.

According to response (4), mining will not be permitted in three areas that have just been "named" U.S. national monuments. Like the original sentence, this sentence states that three areas were named national monuments. In addition, this sentence, too, states that mining will not be permitted in these areas.

Response (4) is thus closest in meaning to the original sentence and is therefore the correct response.

READING COMPREHENSION

Reading comprehension questions test your ability to read and understand texts that you have never seen before. Each English section contains two texts, each followed by five or six questions. It is important to read the entire text before attempting to answer the questions.

The questions focus on different parts of the text and require different reading comprehension skills. For example, one of the questions will probably be of a general nature, such as "What is the text's main purpose?" Others will be more specific and relate to the main purpose of a certain paragraph or to the meaning of a word, a group of words, or a sentence. Some questions will draw your attention to information specified in the text. Such questions usually begin with the words, "According to paragraph X..." In other questions, you will be asked to "read between the lines" and draw a conclusion based on what is written in the text. Such questions generally begin with "It can be inferred/ understood..." Pay attention to the precise wording of each question.

Instructions:

This part consists of two passages, each followed by several related questions. For each question, **choose the most appropriate answer based on the text**.

Below is an example of a text and questions, as well as explanations of the responses.

(1) One afternoon in 1993, an American gem expert named Benjamin Zucker received an unexpected visit from a Swiss gem dealer. The dealer placed a plain box on Zucker's desk and casually opened it, revealing 23 pearls, so large and of such a brilliant orange color that Zucker thought they could not possibly be genuine. The largest was 32 millimeters in diameter – (5) bigger than a robin's egg. Zucker had seen few pearls of that size and had never seen an orange pearl of any kind. The Swiss dealer knew nothing of the pearls' history, except that they had been purchased in Vietnam and were said to have come from the imperial treasury. Though the pearls were not for sale, Zucker became determined to trace their origins.

Zucker brought the pearls to Kenneth Scarratt at the Gemological Institute of America. (10) Scarratt confirmed that the pearls were real and that they were almost definitely from Vietnam. Scarratt had seen one such pearl several years before and had traced it to a type of shell found in Vietnamese waters. He reported that only four orange pearls had ever been documented, all in the past 30 years and all from Vietnam. He was astounded to see such a large collection. Scarratt's information suggested to Zucker that, indeed, the pearls must have belonged to (15) Vietnamese royalty: in a country like Vietnam, where wealth and power had been concentrated for generations in the hands of the emperors, no one else could have acquired such an extraordinary collection. Scarratt also told Zucker that the pearls were probably hundreds of years old. He based his conclusion on a pattern of tiny wear marks, which indicated frequent handling over a long period of time.

(20) Zucker set out to learn everything he could about pearls in Vietnamese art and history. He found that many 18th- and 19th-century Vietnamese royal objects featured a pearl with a flaming tail, often pursued by a dragon, the symbol of the Vietnamese emperor. This suggested to Zucker that the Vietnamese emperors had indeed owned flame-colored – that is, orange – pearls. Zucker then traveled to Vietnam, where he met with scholars and with people (25) who had been close to the royal family. None of them had seen or even heard of such pearls. Nor could he find any record of the collection. Nonetheless, Zucker remains convinced that the pearls were once the treasure of the emperors of Vietnam.

Sample Questions and Explanations:

1. According to the first paragraph, when Zucker first saw the pearls, he thought that they were -

(1) Vietnamese
(2) not for sale
(3) stolen
(4) not real

In order to answer the question, we must understand the information provided in the first paragraph about Zucker's thoughts when he first saw the pearls. The relevant information is in line 4 of the text: "Zucker thought they could not possibly be genuine." In other words, Zucker thought that they were fake or artificial. The correct response is therefore (4): "not real."

Responses (1) and (2) are incorrect because they reflect what Zucker was told about the pearls, and not his own thoughts about them. Response (3) is not mentioned at all in the text. There is nothing in the text to indicate that the pearls were stolen.

2. The second paragraph is mainly about -

(1) how Scarratt first found the royal pearls
(2) what Zucker told Scarratt about the pearls
(3) what Zucker learned at the Gemological Institute about the pearls
(4) how the Vietnamese emperors acquired the pearls

This question relates to the entire second paragraph, which deals with the information that Zucker was given by Kenneth Scarratt of the Gemological Institute. The correct response is (3): "what Zucker learned at the Gemological Institute about the pearls."

Response (1) is incorrect because Scarratt did not find the pearls, and the way in which he first learned about the pearls is mentioned only in the first sentence of the paragraph: "Zucker brought the pearls to Kenneth Scarratt..."

Response (2) is incorrect because the paragraph does not discuss what Zucker told Scarratt, but rather, what Scarratt told Zucker.

Response (4) is incorrect because nothing is stated in the paragraph about how the pearls were acquired by the Vietnamese emperors. Instead, it only mentions Zucker's theory that the pearls must have once belonged to the Vietnamese royal family.

3. The tiny marks mentioned in line 18 helped Scarratt determine the pearls' -

(1) owners
(2) country of origin
(3) value
(4) age

In order to answer the question, we must see what the passage says about the tiny marks and Scarratt's conclusion. The relevant information is found in lines 17-18: "Scarratt also told

Zucker that the pearls were probably hundreds of years old. He based his conclusion on a pattern of tiny wear marks..." In other words, the signs helped Scarratt arrive at a conclusion as to the age of the pearls. Thus, response (4) is correct. The other possible responses are unrelated to the age of the pearls and are therefore incorrect.

4. It can be understood from the last paragraph that people in Vietnam told Zucker that -

(1) they had read about orange pearls
(2) someone in their family had worn orange pearls
(3) the Vietnamese emperors had owned orange pearls
(4) they did not know anything about orange pearls

In order to answer this question, we must see what we can infer from the specific information provided in the last paragraph. The paragraph states that Zucker traveled to Vietnam, where he met with various people, none of whom had ever seen or heard about the pearls. It also states that he found no written record of the pearls. In other words, the people Zucker spoke to in Vietnam were totally unaware of the pearls' existence. Thus, the correct response is (4), which states that none of the people that Zucker met knew anything about the pearls. The other responses indicate that the people knew something about the pearls; therefore, these responses are incorrect.

5. "Nonetheless" (line 26) could be replaced by -

(1) Even though Vietnamese scholars believe that he is right
(2) Even though he remains convinced that the pearls are from Vietnam
(3) Even though he found no evidence in Vietnam to support his theory
(4) Even though the dragon was a symbol of the Vietnamese emperor

The question focuses on the word "nonetheless." To answer this question, we must understand the meaning of "nonetheless" in the given context. "Nonetheless" has the same meaning as "even though" or "despite." It indicates a contrast or contradiction between what preceded it and what follows it. Examining the text, we see that the sentence "Nonetheless, Zucker remains convinced" appears after the sentence which states that Zucker traveled to Vietnam but was unable to find any living or written record about the existence of the pearl collection. In other words, Zucker is still convinced that the pearls originated with the Vietnamese emperors in spite of the fact that he found no proof in Vietnam to support his theory. Therefore, (3) is the correct response.

Response (1) is incorrect for two reasons: First, nowhere does the text mention that scholars believe Zucker is right. Secondly, it would not make sense to say that someone remains convinced even though people believe he is right, because the two are neither contradictory nor a contrast.

Response (2) makes no sense. If we insert it in the text, the sentence will say "Even though he remains convinced ... he remains convinced."

Response (4) presents information that is correct in and of itself, but makes no sense in the given context: There is no connection between the fact that the dragon was a symbol of the Vietnamese emperor and the fact that Zucker remains convinced.

6. A good title for the text would be -

(1) Orange Pearls in Vietnamese Art and History
(2) Benjamin Zucker, American Gem Expert
(3) Vietnamese Royal Objects of the 18th and 19th Centuries
(4) Tracing the Origins of a Mysterious Treasure

A question about an appropriate title is one of the ways of asking about the main subject or purpose of the text. The above text deals with Zucker's repeated attempts to trace the origin of the rare and mysterious orange pearls. The correct response is therefore (4), "Tracing the Origins of a Mysterious Treasure." Similar wording is found in line 8, as an introduction to the developments that follow: "Zucker became determined to trace their origins."

Response (1) is incorrect because the text deals with a specific collection of orange pearls which apparently is connected to Vietnam, and not with orange pearls in general as they appear in Vietnamese art, or with the significance of orange pearls in Vietnamese history.

Response (2) is not an appropriate title because the text focuses on Zucker's attempts to solve the mystery of the orange pearls; it does not deal with Zucker's life or career as a gem expert.

Response (3) is incorrect because the text does not deal with the general topic of items belonging to the Vietnamese royal family.

HEBREW PROFICIENCY TEST

This test is intended for examinees who take the Psychometric Test in a language other than Hebrew. The test takes approximately one and a half hours, and consists of two parts. The first part contains two or three sections with questions in multiple-choice format; in the second part, examinees are requested to write a composition. The instructions here are translated into English. In the actual exam, the instructions appear in Hebrew only.

FIRST PART

This part consists of two or three sections.
Each section contains different types of questions: sentence completions, reading comprehension, and restatements.
Below are examples of each type of question.

INSTRUCTIONS APPEARING AT THE BEGINNING OF EACH SECTION:

בפרק זה 22 שאלות.
הזמן המוקצב הוא 20 דקות.

בפרק שלושה סוגי שאלות: השלמת משפטים, הבנת הנקרא וניסוח מחדש.

השלמת משפטים

INSTRUCTIONS:

בכל אחד מן המשפטים הבאים חסרה מילה או יותר. עליך לבחור מתוך ארבע התשובות המוצעות את התשובה שתשלים את המשפט באופן **הטוב ביותר**.

This part consists of sentences with one or more words missing in each. Choose from among the four possible responses the one which best completes the sentence.

SAMPLE QUESTIONS AND EXPLANATIONS:

1. התפתחות המחקר בחלל ____ על חיי היום-יום שלנו.

(1) כובשת
(2) משפיעה
(3) מזיקה
(4) מסייעת

The missing word is followed by the preposition על. The word כובשת (response 1) takes את as a preposition, and the words מזיקה (response 3) and מסייעת (response 4) take ל- as a preposition. Only משפיעה (response 2) takes על as its preposition and therefore it is the correct response.

2. הוא צחק ושר, ____ לא עבר חוויה נוראה כל כך.

(1) בעוד ש-
(2) אילו
(3) עד ש-
(4) כאילו

Response (1) is grammatically correct, but creates an illogical sentence. Responses (2) and (3) do not fit the syntax of the sentence. The only appropriate word is כאילו, which is response (4).

הבנת הנקרא

INSTRUCTIONS:

לפניך קטע, ובסופו שאלות. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה **המתאימה ביותר** לכל שאלה.

This part consists of a text followed by several questions. For each question, choose from among the four possible responses the one which is most appropriate, based on the text.

SAMPLE TEXT:

(1) במשפט שנערך לאחרונה בארה"ב, הועלה לדיון נושא עקרוני הקשור לאיזון העדין שבין הזכות לחופש הביטוי ובין זכותו של האדם לפרטיות. השאלה שבה עסק המשפט הייתה, באיזו מידה יכול ביוגרף להשתמש במכתבים של אדם שעליו הוא כותב, בלא הסכמתו. פסק הדין במשפט עורר הרהורים וחששות בקהילה הספרותית בארה"ב.

(5) במשפט נידונה תביעתו של הסופר ג'.ד. סאלינג'ר נגד הוצאת ספרים ידועה. ההוצאה ביקשה לפרסם ביוגרפיה מקיפה על סאלינג'ר, אשר היה נערץ על אמריקנים רבים, בעיקר בשנות ה–50 וה–60 של המאה ה–20. סאלינג'ר, שידע על הכנת הביוגרפיה, סירב להתראיין או למסור מכתבים לכותב הביוגרפיה. למרות סירובו התקיף, המשיך הכותב לאסוף חומר לצורך כתיבת הביוגרפיה. לפיכך מיהר סאלינג'ר להוציא צו זכויות יוצרים המגן על התכתבויותיו האישיות, השמורות בכמה ארכיונים של אוניברסיטאות ידועות בארה"ב. לאחר שהביוגרף סיים
(10) את מלאכתו והתברר שכלל בספרו ציטוטים נרחבים ממכתבים אלה על אף צו זכויות היוצרים, תבע סאלינג'ר את ההוצאה לאור בערכאות משפטיות, וזכה בסופו של דבר בערעורו האחרון לפני בית המשפט העליון. השופטים החליטו שאסור לצטט ציטוטים ארוכים ומדויקים מהמכתבים המוגנים על–ידי זכויות יוצרים, כל עוד סאלינג'ר לא הסכים לכך, אולם ניתן להשתמש בחומר "שימוש הוגן", כלומר ללמוד ממנו על אירועים או על תהליכים בחייו של סאלינג'ר. הצלחת התביעה של סאלינג'ר מדאיגה ביוגרפים ומוציאים לאור. הכותבים חוששים כי
(15) בעקבות תקדים זה יעמוד מעתה לרשותם חומר מצומצם ביותר. המוציאים לאור טוענים כי צפוי גל תביעות משפטיות, אשר יעלה את תעריפי הביטוח של חברותיהם. כך תיווצר מערכת שיקולים חדשה בבחירת נושאים לפרסום, ולאו דווקא לטובת הקוראים, האוהבים ביוגרפיות.

SAMPLE QUESTIONS AND EXPLANATIONS:

1. בשורה 3 כתוב: "בלא הסכמתו". הכוונה היא להסכמה של –

(1) בית המשפט
(2) המוציא לאור
(3) בעל המכתבים
(4) מחבר הביוגרפיה

The word הסכמתו (his agreement) refers to אדם שעליו הוא כותב (the person about whom he is writing). Lines 2-3 mention this person's letters. Thus, response (3) is the correct response.

2. הביוגרפיה, שעליה מדובר בקטע, מתבססת בין השאר על –

(1) ראיונות של הביוגרף עם סאלינג'ר
(2) מכתבים אישיים של סאלינג'ר
(3) הופעתו של סאלינג'ר בבית המשפט
(4) התכתבויותיו של סאלינג'ר עם אוניברסיטאות ידועות

Lines 9-10 state that the biographer included extensive quotations from these letters in his book. These letters are from Salinger's personal correspondence mentioned in line 9. The correct response is therefore (2).

3. בשורה 17 כתוב: "ולאו דווקא לטובת הקוראים", וזאת משום שהקוראים מעוניינים ב–

(1) הופעת ביוגרפיות רבות
(2) העלאת תעריפי הביטוח
(3) יצירת מערכת שיקולים חדשה
(4) שימוש הוגן בחומר כתוב

Line 17 states that readers like biographies. From this we understand that they want many biographies to be available. The correct response is therefore (1).

ניסוח מחדש

INSTRUCTIONS:

בכל שאלה נתון משפט, ואחריו ארבע אפשרויות תשובה. מתוך ארבע התשובות המוצעות, בחר את התשובה שתוכנה הוא **הדומה ביותר** למשפט הנתון.

Each question consists of a sentence followed by four responses. Choose the one which best expresses the meaning of the original sentence.

SAMPLE QUESTIONS AND EXPLANATIONS:

1. ייתכן שנבוא מחר.

(1) כדאי שנבוא מחר.
(2) אולי נבוא מחר.
(3) ברור שנבוא מחר.
(4) רצוי שנבוא מחר.

The word ייתכן means "probably," "perhaps," "possibly," or "it could be." Of the four responses offered, אולי (perhaps) is the word that best replaces it. Therefore, response (2) is the correct response.

2. אין לנו פרחים בגינה, אלא עצי פרי.

(1) אין לנו פרחים, ואין לנו עצי פרי.
(2) יש לנו פרחים, ואין לנו עצי פרי.
(3) יש לנו גם פרחים וגם עצי פרי .
(4) אין לנו פרחים, יש לנו עצי פרי.

The word אלא means "but" or "only." The sentence means that there are no flowers in the garden, only fruit trees. Thus, (4) is the correct response.

SECOND PART

חיבור

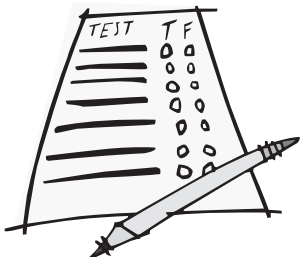
INSTRUCTIONS:

בפרק זה נתון נושא לחיבור. עליכם לכתוב **12–15** שורות על נושא זה. שימו לב שהחיבור יתאים לנושא, והשתדלו לכתוב באופן מסודר ובלשון נכונה. הזמן המוקצב לכתיבה הוא **15** דקות.

You have 15 minutes to write a 12-15 line composition on a given topic. Make sure the composition relates to the topic. Try to write in an orderly fashion, using good Hebrew.

להלן דוגמה לנושא חיבור: The following is an example of a subject for a composition:

האם כדאי לקרוא יותר מעיתון אחד **Should one read more than one newspaper?**



HEBREW PROFICIENCY PRACTICE TEST

The answer sheet to be filled in appears on page 119.

פרק 1

בפרק זה 22 שאלות.
הזמן המוקצב הוא 20 דקות.

בפרק שלושה סוגי שאלות: השלמת משפטים, הבנת הנקרא וניסוח מחדש.

השלמת משפטים

בכל אחד מן המשפטים הבאים חסרה מילה או יותר. עליך לבחור מתוך ארבע התשובות המוצעות את התשובה שתשלים את המשפט באופן **הטוב ביותר**, ולסמן את מספרה במקום המתאים בגיליון התשובות.

1. היא רוצה שהוא _____ לה מתנה.

(1) מביא
(2) יביא
(3) הביא
(4) להביא

---

2. אני לא הייתי פה _____.

(1) פגישה ראשונה
(2) הפגישה הראשונה
(3) בפגישה הראשונה
(4) כשהפגישה הראשונה

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3. כשהיינו ילדים היינו _____ את החדר בעצמנו.

(1) ניקינו
(2) ננקה
(3) לנקות
(4) מנקים

---

4. לא _____ למסיבה, ולכן לא באנו.

(1) זָמְינוּ
(2) הוּזְמַנּוּ
(3) מַזְמִינִים
(4) מוּזְמָנִים

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5. דיברנו על ההפגנה הגדולה _____ אנשים רבים השתתפו בה.

(1) בגלל
(2) אשר
(3) אם
(4) מאשר

המשך לעמוד הבא

הבנת הנקרא

לפניך קטע ובסופו שאלות. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה **המתאימה ביותר** לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

באיזו מידה מעורבים אבות בגידול ילדיהם הפעוטים – זה נושא עבודת מחקר חדשה של פְּסיכוֹלוֹגית מן האוּנִיבֶרְסיטה העברית. לצורך המחקר רואיינו 160 זוגות הורים לתינוקות בני תשעה חודשים, המשתייכים לקבוצות חברתיות שונות.

לפעמים אבות רוצים לעשות רושם שהם מעורבים מאוד בגידול ילדיהם. כדי שהמחקר לא יושפע מכך, הם לא התבקשו להעריך את קשריהם עם התינוק, אלא רק לתאר בפירוט את פעילותם במשך ימים אחדים. החוקרת מדדה את מעורבות האב על פי שני מדדים (= קְריטֶריוֹנים): כמה זמן מקדיש האב לפעילות משותפת עם התינוק, ומספר הטיפולים שהוא מטפל בו.

התברר, שרוב האבות מנצלים רק כשליש מהזמן העומד לרשותם לשם פעילות הדדית עם התינוק. פרט מעניין שעלה מן הממצאים הוא, כי האימהות, הנמצאות בדרך כלל זמן רב יותר עם הילד, מנצלות רק כעשירית ממנו לפעילות ממשית עם הילד.

האב הממוצע מבצע ביום פעולת טיפול אחת בתינוק. האבות שמטפלים בתינוקם פעמיים ביום ויותר, הם ברובם בעלי השכלה גבוהה יותר ונשואים לנשים עובדות.

במחקר נבדק משתנה נוסף, והוא – דימוי התינוק. כלומר, כיצד מעריכים ההורים את הכשרים השכליים של התינוק. נמצא, שאבות בעלי מעורבות גדולה יותר בגידול התינוק, רואים בתינוקם תינוק מפותח מגיל מוקדם יותר, וזאת בהשוואה לאבות המקדישים לילדם זמן מועט. יש פה, לדעת החוקרת, תופעה מעגלית: אב המכיר את תינוקו יותר, רואה בו תינוק מפותח יותר וחושף אותו לגירויים רבים יותר; בעקבות זאת הקשרים ביניהם יהיו אמיצים יותר, והפעילות המשותפת רבה יותר.

השאלות

6. בשורה 1 כתוב: "גידול ילדיהם **הפעוטים**". במקום "פעוטים" אפשר לומר במשפט זה –

(1) מפותחים
(2) קטנים
(3) חלשים
(4) פעילים

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7. מידת מעורבות האב בגידול הילד נמדדה, בין השאר, על פי –

(1) מספר הטיפולים שהאב מטפל בילד
(2) מספר שנות הלימוד של האב
(3) מספר הגירויים שהילד נחשף אליהם
(4) השכבה החברתית שהאב משתייך אליה

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8. בשורה 10 כתוב: "רק כעשירית **ממנו**". ב"ממנו" הכוונה ל-

(1) מן האב
(2) מן הילד
(3) מן המחקר
(4) מן הזמן

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9. לפי הקטע, האֵם נמצאת זמן רב יותר עם הילד -

(1) ולכן היא מקדישה יותר זמן לפעילות משותפת איתו
(2) ואף על פי כן היא מנצלת רק חלק קטן מן הזמן לפעילות עם הילד
(3) וכתוצאה מכך הקשרים של הילד עם האב חלשים ביותר
(4) ומשום כך היא מכירה יותר את הילד ומפתחת את כשריו השכליים

ניסוח מחדש

בכל שאלה נתון משפט. עליך לבחור מתוך ארבע התשובות המוצעות, את התשובה שתוכנה הוא **הדומה ביותר** למשפט הנתון, ולסמן את מספרה במקום המתאים בגיליון התשובות.

10. בעוד הילדים קונים את הדרוש למסיבה, ניגשו המבוגרים לסדר את החדר.

(1) הילדים קנו יותר ממה שהיה דרוש, משום שהמבוגרים היו עסוקים בסידור החדר.
(2) הדברים הדרושים למסיבה נקנו על ידי ילדים נוספים.
(3) היו דרושים עוד ילדים לצורך הקניות, ולכן רק המבוגרים סידרו את החדר.
(4) הילדים קנו דברים למסיבה, כשהמבוגרים סידרו את החדר.

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11. התעניינתי לא רק בנושא הזה.

(1) התעניינתי גם בנושאים אחרים.
(2) לא רק אני מעוניין בנושא הזה.
(3) רציתי לדעת מה מעניין בנושא הזה דווקא.
(4) מעניין למה רק הנושא הזה לא מספיק.

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12. אני רוצה לעבוד שם במשך חודש.

(1) אני רוצה לעבוד שם בעוד חודש.
(2) אני רוצה לעבוד שם החודש.
(3) אני רוצה לעבוד שם אחרי חודש.
(4) אני רוצה לעבוד שם חודש.

המשך לעמוד הבא

13. ניפוּ מחצית משכרי.

(1) הוסיפו לי עוד מחצית משכרי.
(2) תרמו בשמי מחצית משכרי.
(3) הורידו לי מחצית משכרי.
(4) התחלקו במחצית שכרי.

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14. הוא הסתכל במתרחש.

(1) הוא התרגש ממה שראה.
(2) הוא הביט במה שקורה.
(3) הוא הסתכל, כי היו רחשים.
(4) הוא ראה את כל הרכוש שנקנה.

הבנת הנקרא

לפניך קטע ובסופו שאלות. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה **המתאימה ביותר** לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

(1) דגם (מוֹדֶל) מיוחד של יְרוּשָׁלַיִם משנת 1872, שהכין סְטֶיפַן אִילֶש בשביל התערוכה העולמית שהתקיימה אז בוִינָה, מוצג בימים אלה במוּזֵיאוֹן לתולדות ירושלים במגדל דָּוִד.

בדגם רואים את בנייני העיר העתיקה וחומותיה, את השכונות הראשונות שנבנו מחוץ לחומות, ואת המבנים הראשונים של העיר. אפשר לראות בדגם את הטוֹפּוֹגְרָפְיָה הראשונית של העיר וסביבותיה, וכמו
(5) כן את שער יָפוֹ כמו שהיה לפני שנת 1898. בשנה זו פתחו פתח גדול ברוחב של 12 מטר בחלק החומה שבין שער יפו לבין מגדל דָּוִד. כניסה נוספת זו נפתחה לכבוד ביקורו בירושלים של וִילְהֶלְם, קֵיסַר גֶּרמַנְיָה.

לפני כמה שנים החלו במחקר לגילוי דגם זה. סְטוּדֶנְט מן האוּנִיבֶרְסִיטָה העברית מצא מַפָּה, שלפיה הוכן הדגם. אחרי חיפושים רבים ובעזרת אנשים נוספים, נמצא הדגם בעליית גג של ספריית אוּנִיבֶרְסִיטַת
(10) זְ'נֶוָה בשְׁוַוִיץ; לְשָׁם הגיע הדגם, אחרי שנדד בתערוכות שונות בגֶּרמַנְיָה. לפי בקשתו של ראש עיריית ירושלים הסכימה אוניברסיטת ז'נווה להשאיל את הדגם לתצוגה בירושלים למשך עשר שנים.

השאלות

15. כיום אפשר לראות את הדגם -

(1) באוניברסיטה העברית
(2) בשער יפו
(3) בעליית גג
(4) במגדל דוד

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16. בדגם אפשר לראות את שער יפו -

(1) כמו שהוא היום
(2) כמו שהיה בזמן ביקורו של וילהלם קיסר גרמניה
(3) כמו שהיה לפני ביקורו של וילהלם בשנת 1898
(4) כמו שהיה אחרי הביקור של הקיסר הגרמני בירושלים

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17. מצאו את הדגם -

(1) בעליית הגג של ספריית האוניברסיטה העברית
(2) בתערוכה מיוחדת בגרמניה
(3) בספריית האוניברסיטה בז'נווה
(4) במוזיאון לתולדות ירושלים במגדל דוד

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18. איזה מן המשפטים הבאים נכון לפי הקטע?

(1) אוניברסיטת ז'נווה נתנה את הדגם במתנה לעיר ירושלים
(2) אוניברסיטת ז'נווה מסרה את הדגם לעיריית ירושלים לעשר שנים
(3) אוניברסיטת ז'נווה השאילה את הדגם לתצוגה בספריית האוניברסיטה העברית
(4) אוניברסיטת ז'נווה נתנה את הדגם לראש עיריית ירושלים

המשך לעמוד הבא

ניסוח מחדש

בכל שאלה נתון משפט. עליך לבחור מתוך ארבע התשובות המוצעות, את התשובה שתוכנה הוא **הדומה ביותר** למשפט הנתון, ולסמן את מספרה במקום המתאים בגיליון התשובות.

19. היו שם האוהדים, החל בצעירים וכלה בזקנים.

(1) היו שם האוהדים הזקנים.
(2) היו שם אוהדים מכל הגילים.
(3) היו שם בעיקר אוהדים צעירים.
(4) היו שם רק אוהדים צעירים וזקנים.

20. אין ספורטאי טוב ממנו באוניברסיטה.

(1) זה הספורטאי הטוב ביותר באוניברסיטה.
(2) הספורטאי הזה אינו ספורטאי טוב.
(3) הספורטאי הזה טוב יותר מכל הספורטאים באוניברסיטאות.
(4) הוא טוב בספורט יותר מבלימודים באוניברסיטה.

21. התאונה נגרמה מחוסר השגחה מצד האחראים על המטיילים.

(1) מי שהיה צריך להשגיח אחראי לתאונה.
(2) מי שלא טייל אחראי לתאונה.
(3) המטיילים הלא-אחראים גרמו לתאונה.
(4) השגחה רבה מצד האחראים גרמה לתאונה.

22. הוא איבד את עשתונותיו.

(1) הוא לא שילם את חובותיו.
(2) הוא טעה בחישוביו.
(3) הוא לא שמר על הקשרים שהיו לו.
(4) הוא לא ידע מה לעשות.

אל תהפוך את הדף עד שתקבל הוראה לכך!

עמוד ריק

פרק 2

בפרק זה 22 שאלות.
הזמן המוקצב הוא 20 דקות.

בפרק שלושה סוגי שאלות: השלמת משפטים, הבנת הנקרא וניסוח מחדש.

השלמת משפטים

בכל אחד מן המשפטים הבאים חסרה מילה או יותר. עליך לבחור מתוך ארבע התשובות המוצעות את התשובה שתשלים את המשפט באופן **הטוב ביותר**, ולסמן את מספרה במקום המתאים בגיליון התשובות.

1. כאשר הם משחקים בחוץ, הם _____ לי לישון.

(1) היו מפריעים
(2) הפריעו
(3) יפריעו
(4) מפריעים

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2. הוא מדבר הרבה _____ אחיו.

(1) בהשוואה ל-
(2) חוץ מ-
(3) מלבד
(4) ביחסים ל-

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3. הכלב הזה נולד עם שני לבבות, אבל _____ אחד אינו פועל.

(1) לבבה
(2) לב
(3) לבבי
(4) לבו

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4. היא חסרה לי מאוד, ואני _____ בה הרבה.

(1) מהרהרת
(2) מחבבת
(3) מתכתבת
(4) מתקשרת

המשך לעמוד הבא

הבנת הנקרא

לפניך קטע ובסופו שאלות. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה **המתאימה ביותר** לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

(1) תנועת התיירות הבין-לאומית, כפי שהיא מתגלה היום, היא תולדה של שני תהליכים היסְטוֹריים מקבילים: הראשון הוא תהליך השיקום והגידול הכלכלי שעברו מדינות המערב אחרי מלחמת העולם השנייה. התהליך השני הוא פריצת הדרך המהירה בתחום הטֶכְנוֹלוֹגְיָה והייצור של אמצעי תחבורה חדישים, ובעיקר של מטוסי נוסעים. תהליך התיעוש והפיתוח הכלכלי הביא לעלייה ברמת החיים (5) ולגידול רב בזמנו הפנוי של כל אדם. הוא אִפשר להגשים חלומות על טיולים בארצות רחוקות. חברות המטוסים, האניות והרכבות התארגנו במהירות כדי לנצל באופן מסחרי את הפוֹטֶנְצְיָאל הכלכלי שנוצר בתנאים האלה.

בהתפתחות התיירות כענף כלכלי אפשר להבחין בשלבים אחדים: בשלב הראשון, בשנות ה-60, בנו כל הגורמים העוסקים בתיירות את הבסיס הדרוש לטיפול בתיירים ולקליטתם; הוקמו מלונות ומתקני (10) נופש באתרי תיירות שונים, הוקמו חברות נסיעות שמתכננות ומארגנות את כל פרטי הנסיעות לנוחיות התיירים, ונבנו דרכי תחבורה שבהן נוסעים מִילְיוֹנֵי תיירים מכל העולם.

בשלב השני, בשנות ה-70, אופיין פיתוח התיירות בתחרות פרועה בין הגורמים השונים, שראו בתיירות מכרה זהב ודרך לרווחים קלים. הדבר נכון במיוחד לגבי מדינות העולם השלישי, אשר קיוו להשיג פתרונות מהירים לבעיות אבטלה, מחסור במטבע חוץ ועוד, באמצעות התיירות. במקומות שונים (15) בעולם פותחו אתרי תיירות ללא תכנון מוקדם, נבנו מלונות ענק ללא פיקוח, והושקעו כספים רבים בלי מחשבה זהירה. כתוצאה מהתחרות הלא מבוקרת נגרמו נזקים סביבתיים קשים לאתרים, בוזבזו מִילְיוֹנֵי דוֹלָרים, ונפגעה פרנסתם של אלפי עובדים בתיירות.

מאז תחילת שנות ה-80 יש נטייה לכוון את תנועת התיירות ולפקח בצורה קפדנית על כל הגורמים העוסקים בה. רק תכנון כולל ופיקוח חמור יבטיחו הצלת אתרים והגדלת רווחים כלכליים בענף זה.

השאלות

5. בשורה 1 כתוב: "היא **תולדה** של שני תהליכים...". במקום המילה "תולדה" אפשר לומר במשפט זה -

(1) התחלה
(2) תקופה
(3) תוצאה
(4) סיבה

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6. השיקום הכלכלי ופריצת הדרך בתחום הטכנולוגיה קרו -

(1) זה לצד זה
(2) בזה אחר זה
(3) זה לפני זה
(4) זה בגלל זה

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7. בשורה 5 כתוב: "**הוא** אִפשר". ב"הוא" הכוונה ל-

(1) כל אדם
(2) תהליך התיעוש והפיתוח הכלכלי
(3) מטוס הנוסעים
(4) תחום הטכנולוגיה והייצור בלבד

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8. הקמת חברות הנסיעות (שורה 10) הייתה חלק מ-

(1) התחרות הפרועה בין גורמי התיירות
(2) פיתוח הבסיס הדרוש לטיפול בתיירים
(3) השיקום הכלכלי של ענף התיירות
(4) חלומות על טיולים בארצות רחוקות

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9. לפי הקטע -

(1) רצוי לפקח על העוסקים בתיירות
(2) צריך לתת יד חופשית לבעלי המלונות וחברות הנסיעות
(3) אסור להגביל את המשקיעים בענף התיירות
(4) כדאי להקטין את הרווחים הכלכליים מענף התיירות

ניסוח מחדש

בכל שאלה נתון משפט. עליך לבחור מתוך ארבע התשובות המוצעות, את התשובה שתוכנה הוא **הדומה ביותר** למשפט הנתון, ולסמן את מספרה במקום המתאים בגיליון התשובות.

10. הוא המשיך להסביר אף על פי שהיא כבר הבינה.

(1) היא הבינה כי הוא המשיך להסביר.
(2) היא הבינה ובכל זאת הוא לא הפסיק להסביר.
(3) היא הבינה אחרי שהוא גמר להסביר.
(4) היא הבינה ובכל זאת הוא התחיל להסביר.

---

11. לטענתו, יש זיקה בין מוסר לבין אמנות.

(1) הוא חושב שהמוסר מזיק לאמנות.
(2) לדעתו האמנות היא תוצאה של המוסר.
(3) לדבריו האמנות והמוסר קשורים זה בזה.
(4) יש טעם לדעתו גם במוסר וגם באמנות.

המשך לעמוד הבא

12. הבָּרק שבעיניה מסגיר את שובבותה.

(1) היא שקרנית.
(2) היא מבריקה.
(3) היא סגורה.
(4) היא שובבה.

---

13. אני מצדיק את מעשיו.

(1) אני צודק בגלל המעשים שלו.
(2) אני טוען שהוא פעל למען הצדק.
(3) אני צריך להצטדק על מעשיו.
(4) אני חושב שיש מן הצדק במעשיו.

---

14. הוא דילל את המשקה.

(1) הוא שפך את המשקה.
(2) הוא הוסיף מים למשקה.
(3) הוא ערבב את המשקה.
(4) הוא טעם מן המשקה.

הבנת הנקרא

לפניך קטע ובסופו שאלות. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה **המתאימה ביותר** לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

(1) המילה "סוּזָני" פירושה בפרסית מעשה מחט. הרקמות (עבודות החוט והמחט) היפות ביותר שנוצרו בתולדות האמנות העממית, הן יריעות סוּזָני מאַסְיָה התיכונה. הבדים הרקומים היו תמיד סחורה מועדפת, העוברת מרחקים בשלום, מחירה מובטח, והיא גם משמשת אמצעי להעברת מידע וחדשות עיצוביות וטֶכנולוגיות.

(5) התפתחותה של הרקמה קשורה בצורה מופלאה בתולדות הנשים, שהיו תמיד הרוקמות העיקריות. תחילה הייתה הרקמה פעולה טכנית לחיבור בדים, שנארגו כפסים צרים, או לחיזוק הבדים הישנים והמשומשים. אחר כך נהפכה הרקמה לאמנות עממית קיבוצית; מאות נשים היו יושבות ורוקמות דוגמאות צבעוניות על מטרים של בדים, ומשקיעות כוח, דמיון ומחשבה בכיסויים ובכלי מיטה. הרקמה בקבוצות באה להקל את העייפות והבדידות שאפיינו את חיי האישה, ובכך היה התהליך דומה
(10) בתרבויות שונות בקצווי העולם.

פסי האריג היו מחוברים יחד ומסומנים. אחר כך קיבלה כל אישה את חלקה לביצוע. אחד הדברים האנושיים והמרגשים הוא, שפעמים רבות אין התאמה מושלמת בין החלקים, שכן הנשים לא טרחו להתיר ולרקום שוב כדי ליצור התאמה. סגנונות הרקמה החופשיים והבלתי מדויקים הם גם עֵדוּת לכוחות יצירתיים, דמיון ומקוריות שהיו אצל הנשים.

השאלות

15. הסוחרים העדיפו את הבדים הרקומים, משום ש-

(1) הבדים הגיעו מאַסְיָה התיכונה
(2) הבדים שמרו על ערכם
(3) הבדים משקפים את תולדות הנשים
(4) הבדים סיפקו עבודה לנשים

---

16. הנשים שרקמו -

(1) העדיפו לעבוד בקבוצות גדולות
(2) היו עייפות, משום שהרקמה הייתה פעולה טֶכְנִית
(3) התקבצו ובאו מכל קצות העולם
(4) נבחרו מתוך מאות נשים רוקמות

---

17. הרקמה במסגרת קבוצתית _____ אצל הנשים.

(1) גרמה בדידות
(2) הנציחה את הבדידות
(3) עזרה להפחית את הרגשת הבדידות
(4) יצרה בדידות יתר

---

18. יש גיוון רב ברקמות סוּזָני, כי -

(1) מסורת הרקמה לא הועברה מדור לדור
(2) הסוחרים ביקשו מן הנשים להוסיף ולחדש דוגמאות
(3) בכל תרבות צמחה מסורת רקמה שונה
(4) הנשים גילו חוש אמנותי ורצון להתבטא

המשך לעמוד הבא

ניסוח מחדש

בכל שאלה נתון משפט. עליך לבחור מתוך ארבע התשובות המוצעות, את התשובה שתוכנה הוא **הדומה ביותר** למשפט הנתון, ולסמן את מספרה במקום המתאים בגיליון התשובות.

19. הוא המליץ עליך מתוך _____ לעזור לך.

(1) כִּיוּוּן
(2) הַכְוָנָה
(3) כַּוָּנָה
(4) כּוֹנְנוּת

---

20. תהינו על _____ הפתאומית.

(1) שהסתלקו
(2) הסתלקותם
(3) הסתלקות
(4) סלוקה

---

21. לצערנו לא התקיים המשחק, _____ מחלת השחקנים.

(1) בזכות
(2) מחמת
(3) שהרי
(4) למען

---

22. פגשתיו _____ לצאתו.

(1) בקרבה
(2) מיד
(3) בדיוק
(4) סמוך

אל תהפוך את הדף עד שתקבל הוראה לכך!

עמוד ריק

פרק 3

בפרק זה נתון נושא לחיבור. עליכם לכתוב **15-12** שורות על נושא זה.

שימו לב שהחיבור יתאים לנושא, והשתדלו לכתוב באופן מסודר ובלשון נכונה.

יש לכתוב את החיבור על צדו השני של גיליון התשובות.

הזמן המוקצב לכתיבה הוא 15 דקות.

אנא העתיקו את נושא החיבור ואת מספרו.

נושא החיבור:

האם הטלוויזיה עוזרת לחינוך הילדים? מדוע?

מספר הנושא: **20**

Hebrew Proficiency Test

Answer Sheet

NAME A שם

ID NO B מס' זיהוי

ADDRESS C כתובת

מס' חוברת

BOOKLET NO.

DATE תאריך LANGUAGE שפה

מיסוד | של האוניברסיטאות בישראל

מרכז ארצי לבחינות ולהערכה (ע"ר)
NATIONAL INSTITUTE FOR TESTING & EVALUATION
المركز القطري للامتحانات والتقييم

עברית אלף

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SECTION 1 חלק	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④

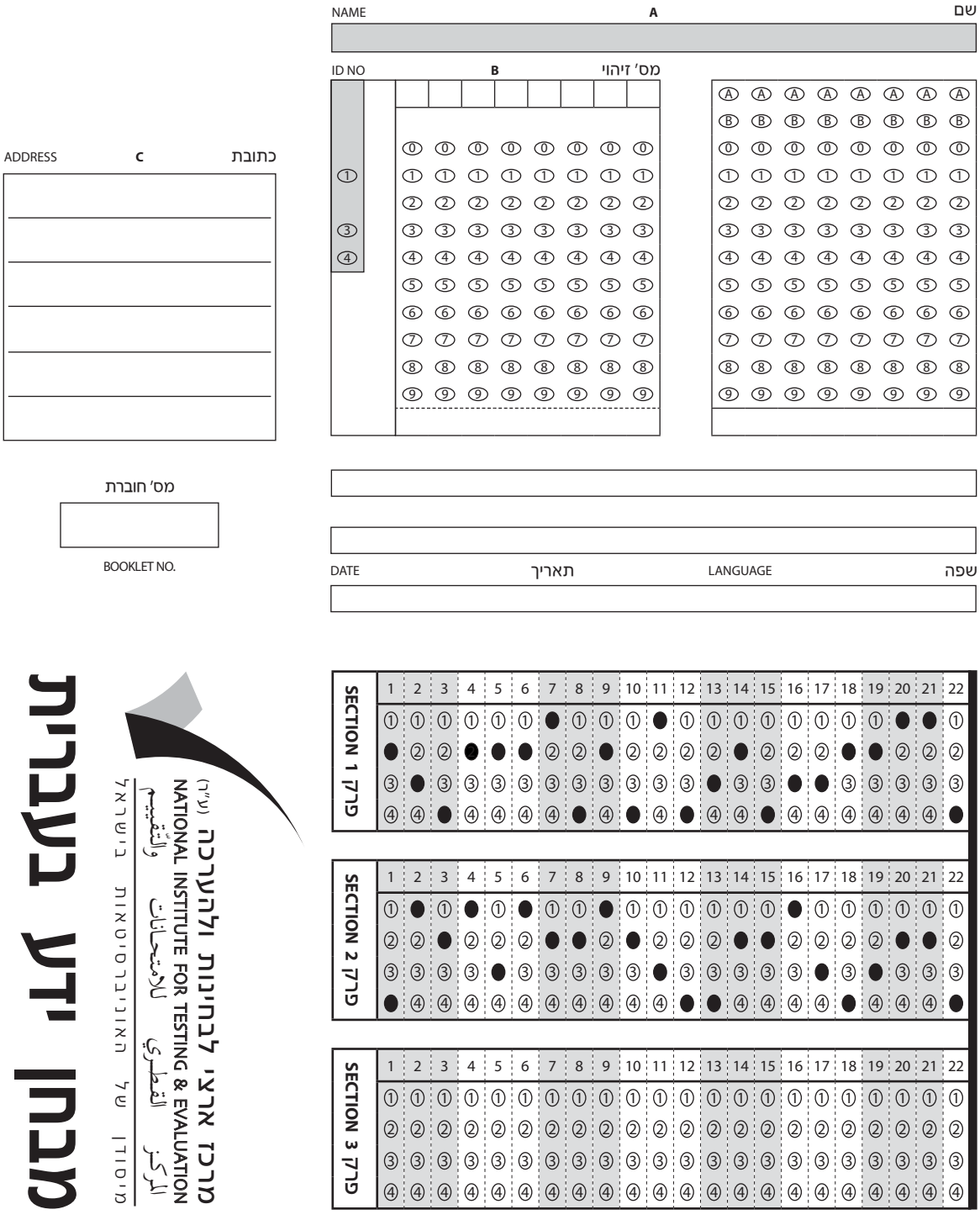
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SECTION 2 חלק	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SECTION 3 חלק	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④

אין לסמן מתחת לקו זה
DO NOT WRITE BELOW THIS LINE

Hebrew Proficiency Test

Answer Key



אין לסמן מתחת לקו זה
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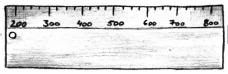


SCORES ON THE HEBREW PROFICIENCY TEST (YAEL)

There are three scores on the Hebrew Proficiency Test: the score on the multiple-choice sections, the score on the composition, and the total score, which is a combination of the two.

There is no "pass" or "fail" score. The scores are given on a scale ranging from 50 to 150.

Below is an explanation and an example of how to calculate an estimate of your score on the multiple choice sections of the Hebrew Proficiency Practice Test. The calculation applies to the multiple choice sections only, as the composition is meant to be graded by two assessors.

CALCULATING YOUR SCORE ON THE MULTIPLE-CHOICE SECTIONS

Each correct answer is worth one point. To calculate your raw score, add up the number of points obtained in the two multiple-choice sections.

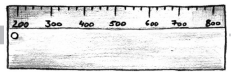
Each raw score is converted to a standardized score on a uniform scale that is not affected by a particular test version, or date. You can obtain an estimate of your score on the multiple choice sections by referring to the table that appears below.

For example, let us assume that your raw score on the multiple choice sections is 35 correct answers (the total for the two sections). Based on the table, the estimate of your score on the multiple choice sections is 120.

Table for Converting Raw Scores to Standardized Scores for the Multiple Choice Sections of the Hebrew Proficiency Test

Raw Score	Standardized Score	Raw Score	Standardized Score	Raw Score	Standardized Score
0	50	15	71	30	107
1	51	16	73	31	110
2	52	17	76	32	112
3	53	18	78	33	115
4	54	19	81	34	117
5	55	20	83	35	120
6	56	21	86	36	123
7	57	22	88	37	127
8	58	23	91	38	130
9	59	24	93	39	133
10	60	25	96	40	137
11	62	26	98	41	140
12	64	27	100	42	143
13	67	28	103	43	146
14	69	29	105	44	150

Hebrew Proficiency Test Scores



CONVERTING YOUR SCORE ON THE MULTIPLE-CHOICE SECTIONS INTO PERCENTAGES

The table for converting ranges of scores into percentages, which appears below, helps you understand the meaning of the estimate that you have obtained. The table is divided into 10 categories, each containing a range of scores. For each range of scores, the percentages of examinees whose score is above, within or below that range is presented. For example, an examinee who obtained a score of 103 on the multiple-choice sections of the test falls within the 100-109 range. Approximately 50% of examinees scored below this range, approximately 14% scored within this range, and some 36% received a score that was above this range.

The distribution into categories is for illustration purposes only, and does not reflect the acceptance policy of any particular institution. The conversion of scores into percentages is based on the entire population of Hebrew Proficiency Test examinees in recent years.

Table for Converting Ranges of Scores into Percentages

Range of Scores	Percentage of Examinees whose Scores Fall		
	below the range	within the range	above the range
50-59	0	3	97
60-69	3	6	91
70-79	9	12	79
80-89	21	13	66
90-99	34	16	50
100-109	50	14	36
110-119	64	16	20
120-129	80	13	7
130-139	93	6	1
140-149	99	1	0

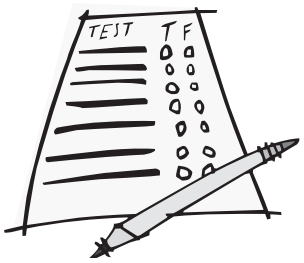
Note: The estimate of your score on the practice test is intended to help you arrive at an approximate evaluation of your level of performance. This estimate does not obligate the National Institue for Testing and Evaluation, and it is not in any way a substitute for the score obtained on an actual Hebrew Proficiency Test.

COMPOSITION SCORE

As stated, the composition that you write on the day of the test will be graded by two assessors, based on four criteria – content, organization, richness of vocabulary and correct usage of language. Each of the assessors gives a separate score. Your score is the average of these scores, also on a scale of 50 to 150.

TOTAL SCORE

The total score is based on a weighted average of the scores on the two parts of the test. The multiple-choice part receives a weight of 2/3 and the composition part receives a weight of 1/3. The total score is calculated on a scale of 50 to 150.



PRACTICE TEST

The following is a Combined/English version Psychometric Test which you can use for practice, and thus obtain an estimate of your performance on the actual test.

Try to solve the test questions under conditions which are as similar as possible to those which you will encounter during the actual test. Keep within the time limits.

There is an answer sheet on p. 239. Cut it out and mark your answers on it.

In the actual test, selected words might be translated into languages which differ from those appearing in the Practice Test. The list of languages for the actual test appears in the Registration Procedures.

Section 1: Quantitative Reasoning

This section contains 25 questions.
The time allotted is 25 minutes.

This section consists of questions and problems involving quantitative reasoning. Each question is followed by four possible responses. Choose the correct answer and mark its number in the appropriate place on the answer sheet.

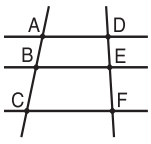
Note: The words appearing against a gray background are translated into several languages at the bottom of the page.

General Comments about the Quantitative Reasoning Section

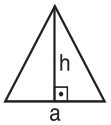
* The figures accompanying some of the questions are provided to help in answering the questions, but are not necessarily drawn to scale. Therefore, do not rely on the figures alone to deduce line length, angle measure, and so forth.
* If a line in a figure appears to be straight, you may assume that it is in fact a straight line.
* When a geometric term (side, radius, area, volume, etc.) appears in a question, it refers to a term whose value is greater than 0, unless stated otherwise.
* When $\sqrt{a}$ $(a > 0)$ appears in a question, it refers to the positive root of a.

Symbols and Formulas

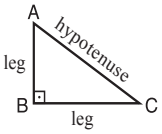
1. **The symbol** $\llcorner$ represents a 90° (right) angle.
   The symbol $\sphericalangle ABC$ represents the angle formed by line segments AB and BC.
   $a \parallel b$ means a is parallel to b.
   $a \perp b$ means a is perpendicular to b.
2. **Zero** is neither a positive nor a negative number.
   Zero is an even number.
   One is not a prime number.
3. **Percentages:** $a\%$ of x is equal to $\frac{a}{100} \cdot x$
4. **Exponents:** For every a that does not equal 0, and for any two integers n and m -
   a. $a^{-n} = \frac{1}{a^n}$ b. $a^{m+n} = a^m \cdot a^n$
   c. $a^{\frac{n}{m}} = \left(\sqrt[m]{a}\right)^n$ $(0 < a, 0 < m)$ d. $a^{n \cdot m} = (a^n)^m$
5. **Contracted Multiplication Formulas:**
   $(a \pm b)^2 = a^2 \pm 2ab + b^2$
   $(a + b)(a - b) = a^2 - b^2$
6. **Distance Problems:** $\frac{\text{distance}}{\text{time}}$ = speed (rate)
7. **Work Problems:** $\frac{\text{amount of work}}{\text{time}}$ = output (rate)
8. **Proportions:** If $AD \parallel BE \parallel CF$
   then $\frac{AB}{DE} = \frac{BC}{EF}$ and $\frac{AB}{AC} = \frac{DE}{DF}$



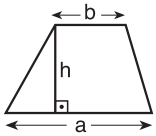
9. **Triangles:**
   a. **The area of a triangle** with base of length a and altitude to the base of length h is $\frac{a \cdot h}{2}$



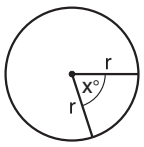
   b. **Pythagorean Theorem:**
   In any right triangle ABC, as in the figure, the following always holds true: $AC^2 = AB^2 + BC^2$



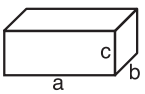
   c. In any right triangle whose angles measure 30°, 60° and 90°, the length of the leg opposite the 30° angle is equal to half the length of the hypotenuse.
10. **The area of a rectangle** of length a and width b is $a \cdot b$
11. **The area of a trapezoid** with one base a, the other base b, and altitude h is $\frac{(a+b) \cdot h}{2}$



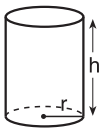
12. **The sum of the internal angles of a polygon** with n sides is $(180n - 360)$ degrees.
    In a regular polygon with n sides,
    each internal angle measures
    $\left(180 - \frac{360}{n}\right) = \left(\frac{180n - 360}{n}\right)$ degrees.
13. **Circle:**
    a. **The area** of a circle with radius r is πr^2 $(\pi = 3.14...)$
    b. **The circumference** of a circle with radius r is $2\pi r$
    c. **The area of a sector of a circle** with a central angle of $x°$ is $\pi r^2 \cdot \frac{x}{360}$



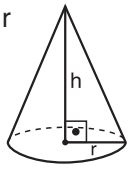
14. **Box (Rectangular Solid), Cube:**
    a. **The volume** of a box of length a, width b and height c is $a \cdot b \cdot c$
    b. **The surface area** of the box is $2ab + 2bc + 2ac$
    c. In a **cube**, $a = b = c$



15. **Cylinder:**
    a. **The lateral surface area** of a cylinder with base radius r and height h is $2\pi r \cdot h$
    b. **The surface area** of the cylinder is $2\pi r^2 + 2\pi r \cdot h = 2\pi r(r + h)$
    c. **The volume** of the cylinder is $\pi r^2 \cdot h$



16. **The volume of a cone** with base radius r and height h is $\frac{\pi r^2 \cdot h}{3}$



פרק 1: חשיבה כמותית

בפרק זה 25 שאלות.
הזמן המוקצב הוא 25 דקות.

בפרק זה מופיעות שאלות ובעיות של חשיבה כמותית. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה הנכונה ולסמן את מספרה במקום המתאים בגיליון התשובות.

הערות כלליות בנוגע לפרק חשיבה כמותית:

* הסרטוטים המצורפים לחלק מהשאלות נועדו לסייע בפתרונן, אך אין הם מסורטטים בהכרח על פי קנה מידה. אין להסיק מסרטוט בלבד על אורך קטעים, גודל זוויות, וכיוצא בהם.
* אם קו נראה ישר בסרטוט, אפשר להניח שהוא אכן ישר.
* כאשר מופיע בשאלה מונח גאומטרי (צלע, רדיוס, שטח, נפח וכו') כנתון, הכוונה היא למונח שערכו גדול מאפס, אלא אם כן מצוין אחרת.
* כאשר כתוב בשאלה $\sqrt{a}$ $(a > 0)$, הכוונה היא לשורש החיובי של a.

סימנים ונוסחאות:

1. הסימן $\sphericalangle$ פירושו זווית של $90°$ - זווית ישרה.

$\sphericalangle ABC$ פירושו הזווית הכלואה בין הקטעים AB ו-BC.

$a \parallel b$ פירושו a מקביל ל-b.

$a \perp b$ פירושו a מאונך ל-b.

2. אפס אינו מספר חיובי ואינו מספר שלילי.
אפס הוא מספר זוגי.
אחד אינו מספר ראשוני.

3. אחוזים: $a\%$ מ-x הם $\frac{a}{100} \cdot x$

4. חזקות: לכל מספר a שונה מאפס, ולכל n ו-m שלמים -

א. $a^{-n} = \frac{1}{a^n}$ ב. $a^{m+n} = a^m \cdot a^n$

ג. $a^{\frac{n}{m}} = \left(\sqrt[m]{a}\right)^n$ $(0 < a\ ,\ 0 < m)$

ד. $a^{n \cdot m} = (a^n)^m$

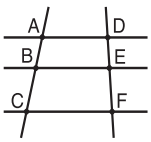
5. נוסחאות כפל מקוצר: $(a \pm b)^2 = a^2 \pm 2ab + b^2$

$(a + b)(a - b) = a^2 - b^2$

6. בעיות דרך: $\text{מהירות} = \frac{\text{דרך}}{\text{זמן}}$

7. בעיות הספק: $\text{הספק} = \frac{\text{כמות עבודה}}{\text{זמן}}$

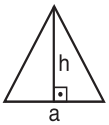
8. פרופורציה: אם: $AD \parallel BE \parallel CF$



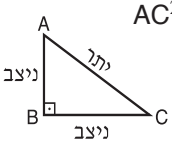
אזי: $\frac{AB}{DE} = \frac{BC}{EF}$ וגם $\frac{AB}{AC} = \frac{DE}{DF}$

9. משולש:

א. **שטח משולש** שאורך בסיסו a ואורך הגובה לבסיס זה h הוא: $\frac{a \cdot h}{2}$



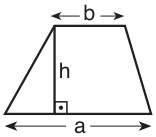
ב. **משפט פיתגורס:**
במשולש ישר זווית ABC כבסרטוט מתקיים החוק הבא: $AC^2 = AB^2 + BC^2$



ג. במשולש ישר זווית שזוויותיו $30°$, $60°$, $90°$, אורך הניצב שמול הזווית $30°$ שווה לחצי אורך היתר.

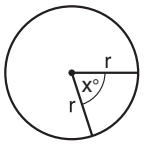
10. שטח מלבן שאורכו a ורוחבו b הוא: $a \cdot b$

11. שטח טרפז שאורך בסיסו האחד a, אורך בסיסו האחר b, וגובהו h הוא: $\frac{(a+b) \cdot h}{2}$



12. סכום הזוויות הפנימיות במצולע
בעל n צלעות הוא: $(180n - 360)$ מעלות.
במצולע משוכלל בעל n צלעות **גודל כל זווית פנימית** הוא: $\left(\frac{180n - 360}{n}\right) = \left(180 - \frac{360}{n}\right)$ מעלות.

13. עיגול, מעגל:

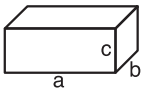


א. **שטח** עיגול שרדיוסו r הוא: πr^2 $(\pi = 3.14...)$

ב. **היקף** מעגל שרדיוסו r הוא: $2\pi r$

ג. **שטח גזרת עיגול** בעלת זווית ראש $x°$ הוא: $\pi r^2 \cdot \frac{x}{360}$

14. תיבה, קובייה:

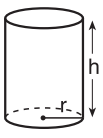


א. **הנפח** של תיבה שאורכה a, רוחבה b וגובהה c הוא: $a \cdot b \cdot c$

ב. **שטח הפנים** של התיבה הוא: $2ab + 2bc + 2ac$

ג. **בקובייה** מתקיים $a = b = c$

15. גליל:

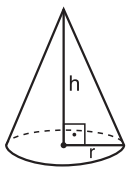


א. **שטח המעטפת** של גליל שרדיוס בסיסו r וגובהו h הוא: $2\pi r \cdot h$

ב. **שטח הפנים** של הגליל הוא: $2\pi r^2 + 2\pi r \cdot h = 2\pi r(r + h)$

ג. **הנפח** של הגליל הוא: $\pi r^2 \cdot h$

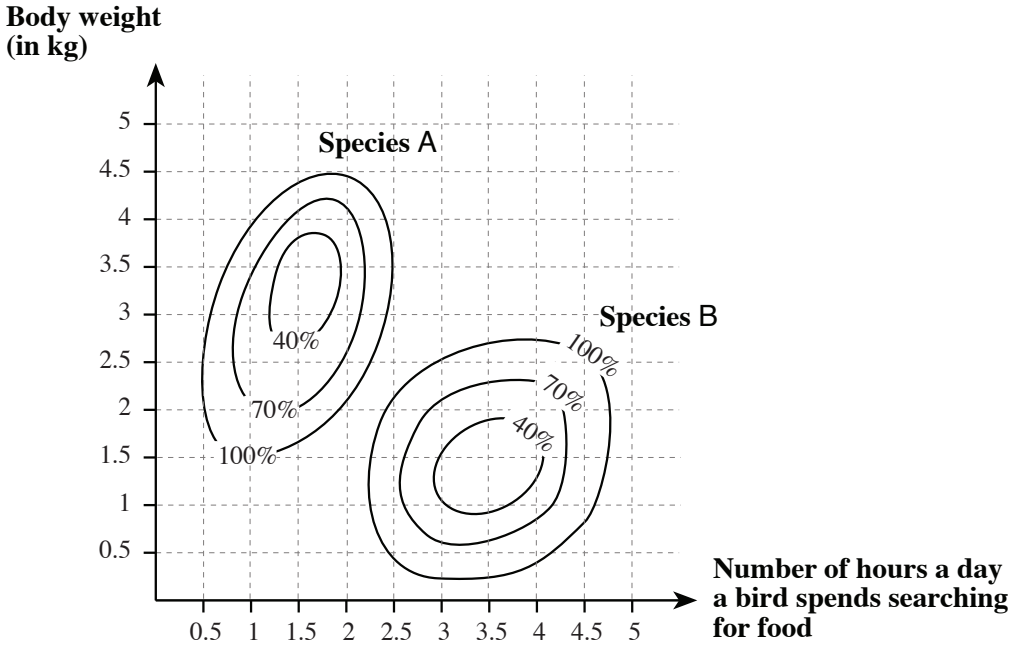
16. נפח חרוט שרדיוס בסיסו r וגובהו h הוא: $\frac{\pi r^2 \cdot h}{3}$



Graph Comprehension (Questions 1-4)

The graph below is followed by four questions. Study the graph, then answer the questions.

The graph below depicts the relationship between the number of hours a day that two species of birds spend searching for food (the horizontal axis) and their body weight (the vertical axis). The graph shows three ellipses for each of the two species of birds. The number on the circumference of each ellipse represents the percentage of all birds of that species for which the point indicating the number of hours they search for food and their weight falls within the ellipse or on its circumference.
For example, there cannot be any birds of species B that search for food 4.5 hours a day and weigh 0.5 kg, but there could be birds that search for food 4.5 hours a day and weigh 1.5 kg.



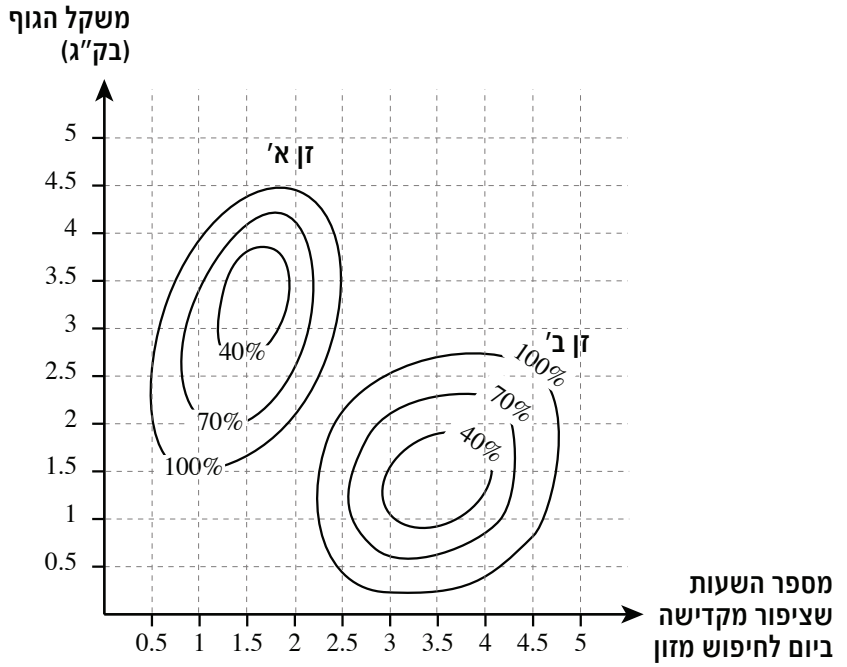
Note: In answering each question, disregard the information appearing in the other questions.

English	Русский	Português	Deutsch	Italiano
species	виды	espécies	Vogelarten	speci
horizontal axis	горизонтальная ось	eixo horizontal	x-Achse	ascisse
vertical axis	вертикальная ось	eixo vertical	y-Achse	ordinate
ellipses	эллипсы	elipses	Ellipse	ellissi
circumference	периметр	perímetro	Umfang	circonferenza

הסקה מתרשים (שאלות 1-4)

עיין היטב בתרשים שלפניך, וענה על ארבע השאלות שאחריו.

התרשים שלפניך מתאר את הקשר בין מספר השעות ביום שמוקדשות לחיפוש מזון (הציר האופקי) לבין משקל הגוף (הציר האנכי) אצל שני זני ציפורים. לכל אחד משני זני הציפורים מתאימות בתרשים שלוש אליפסות. כל מספר המופיע על היקף של אליפסה מבטא את אחוז הציפורים מתוך כל הציפורים מאותו זן, שהנקודה המתארת את מספר שעות חיפוש המזון שלהן ואת משקלן נופלת בתוך האליפסה או על היקפה.
לדוגמה, בזן ב' לא ייתכן שיש ציפורים שמחפשות מזון 4.5 שעות ביום ומשקלן 0.5 ק"ג, אך ייתכן שיש ציפורים שמחפשות מזון 4.5 שעות ביום ומשקלן 1.5 ק"ג.



שים לב: בתשובתך לכל שאלה התעלם מנתונים המופיעים בשאלות האחרות.

Magyar	Nederlands	አማርኛ	עברית
fajták	vogelsoorten	ዝርያዎች	זנים
vizszintes tengely	horizontale as	አግዳሚ መሥመር	ציר אופקי
függőleges tengely	verticale as	ቋሚ መሥመር	ציר אנכי
elipszisek	ellipsen	ኤሊፕሶች	אליפסות
kerület	omtrek	ዙሮሽ (የክብ ዙሪያ)	היקף

Questions

1. What is the maximum body weight (in kg) that a bird of species A can reach?

(1) 2.5
(2) 3.5
(3) 3.75
(4) 4.5

---

2. A disease attacked the trees on which birds of species A feed. As a result, they spent a greater number of hours searching for food, and their weight decreased.
In which direction will the ellipses representing species A move?

(1) down and to the right
(2) down and to the left
(3) up and to the right
(4) up and to the left

---

3. Which of the following statements is true, based on the graph?

(1) There are more birds of species A than of species B.
(2) There are more birds of species B than of species A.
(3) There is an equal number of birds of species A and of species B.
(4) It is impossible to determine the ratio between the number of birds of species A and species B from the graph.

---

4. Larry observed a 3 kg bird that spent 1.5 hours a day searching for food.
Assuming that there are only two species of birds, species A and species B, what is the probability that that bird belongs to species A?

(1) 1
(2) 0.7
(3) 0.6
(4) 0.4

English	Русский	Português	Deutsch	Italiano
decreased	уменьшился	diminuiu	nahm ab	è diminuito
ratio	отношение	proporção	Verhältnis	rapporto/proporzione
probability	вероятность	probabilidade	Wahrscheinlichkeit	probabilità

השאלות

1. מה משקל הגוף המקסימלי (בק"ג) שציפור מזן א' יכולה להגיע אליו?

(1) 2.5
(2) 3.5
(3) 3.75
(4) 4.5

---

2. מחלה תקפה את העצים שמהם ניזונות הציפורים מזן א', ובשל כך הן הגדילו את מספר השעות שהן מקדישות לחיפוש מזון, ומשקלן ירד.
באיזה כיוון יזוזו האליפסות המתארות את זן א'?

(1) למטה וימינה
(2) למטה ושמאלה
(3) למעלה וימינה
(4) למעלה ושמאלה

---

3. איזו מהטענות הבאות נכונה על פי התרשים?

(1) יש יותר ציפורים מזן א' מציפורים מזן ב'
(2) יש יותר ציפורים מזן ב' מציפורים מזן א'
(3) יש מספר שווה של ציפורים מזן א' ומזן ב'
(4) אי-אפשר לדעת על פי התרשים מה היחס בין מספר הציפורים מזן א' ומזן ב'

---

4. לירן ראה ציפור שמשקלה 3 ק"ג ואשר מחפשת מזון 1.5 שעות ביום.
בהנחה שקיימים רק שני זנים של ציפורים, זן א' וזן ב', מה הסיכוי שהציפור הזאת היא מזן א'?

(1) 1
(2) 0.7
(3) 0.6
(4) 0.4

Magyar	Nederlands	አማርኛ	עברית
csökkent	nam af	ቀነሰ	ירד
arány	verhouding	ንጽጽር (ሬሽዮ)	יחס
esély, valószínűség	waarschijnlijkheid	የመሆን ዕድል (ይሆንታ)	סיכוי

Questions and Problems (Questions 5-19)

5. Rachel sleeps 8 hours a night every night of the week except for Friday night, when she sleeps 10 hours. How many hours does Rachel sleep in the course of two weeks?

(1) 98
(2) 102
(3) 116
(4) 124

---

6. The average of a, $2a$ and x is $3a$ $(a \neq 0)$.

$x = ?$

(1) a
(2) $7a$
(3) $3a$
(4) $6a$

---

7. The price of peaches rose by 20%, and 2 kg of peaches now cost 6 shekels.
What was the price (in shekels) of 1 kg of peaches before the price rise?

(1) 2.4
(2) 2.5
(3) 2.8
(4) 3.6

---

8. Given: $x = (3^4)^2 \cdot 3^{-9}$

$x = ?$

(1) 27

(2) 9

(3) -3

(4) $\frac{1}{3}$

English	Русский	Português	Deutsch	Italiano
average	среднее	média	Durchschnitt	media

שאלות ובעיות (שאלות 5-19)

5. רחל ישנה בכל לילה מלילות השבוע 8 שעות, חוץ מבליל שבת, שבו היא ישנה 10 שעות.
כמה שעות רחל ישנה בשבועיים?

(1) 98
(2) 102
(3) 116
(4) 124

---

6. הממוצע של a, 2a ו-x הוא 3a ($a \neq 0$) .

$x = ?$

(1) a
(2) 7a
(3) 3a
(4) 6a

---

7. מחיר 2 ק"ג אפרסקים, לאחר העלאה של 20% במחיר, הוא 6 שקלים.
מה היה מחיר 1 ק"ג אפרסקים לפני ההעלאה (בשקלים)?

(1) 2.4
(2) 2.5
(3) 2.8
(4) 3.6

---

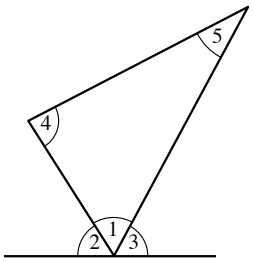
8. נתון: $x = (3^4)^2 \cdot 3^{-9}$

$x = ?$

(1) 27
(2) 9
(3) -3
(4) $\frac{1}{3}$

Magyar	Nederlands	አማርኛ	עברית
átlag	gemiddelde	አማካይ	ממוצע

9. The accompanying figure shows a triangle whose vertex lies on a straight line. In order to determine the size of all of the angles in the figure, it is sufficient to know the size of three angles. Which three angles are they?



(1) $\sphericalangle 1$, $\sphericalangle 2$, $\sphericalangle 3$

(2) $\sphericalangle 1$, $\sphericalangle 2$, $\sphericalangle 4$

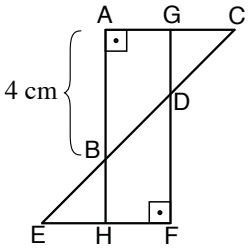
(3) $\sphericalangle 1$, $\sphericalangle 4$, $\sphericalangle 5$

(4) None of the above

---

10. ABC and DEF are congruent isosceles triangles.
EB = BD = DC.

Based on this information and the information in the figure, what is the area of rectangle AHFG (in cm^2)?



(1) $8\sqrt{2}$

(2) 12

(3) 14

(4) 16

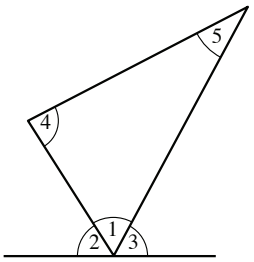
---

11. A candy making machine produces 10 candies per second when operating at full capacity, and 1 candy per second when operating at partial capacity. It is known that the machine operated for 120 seconds, of which the number of seconds that the machine operated at full capacity was 3 times the number of seconds that it operated at partial capacity.
How many candies all together did the machine produce in 120 seconds?

(1) 1,200
(2) 930
(3) 840
(4) 620

English	**Русский**	**Português**	**Deutsch**	**Italiano**
triangle	треугольник	triângulo	Dreieck	triangolo
vertex	вершина	vértice	Ecke	vertice
angles	углы	ângulos	Winkel	angoli
congruent isosceles triangles	конгруэнтные равнобедренные треугольники	triângulos isósceles e congruentes	deckungsgleiche gleichschenklige	triangoli isoscele congruenti
area	площадь	área	Fläche	area
rectangle	прямоугольник	retângulo	Rechteck	rettangolo
capacity	мощность	capacidade	Leistung	rendimento pieno

9. בסרטוט שלפניך משולש שקדקודו מונח על קו ישר. ידיעת גודלן של אילו שלוש זוויות מספיקה כדי לדעת את גודלן של כל הזוויות שבסרטוט?



(1) $\sphericalangle 1 , \sphericalangle 2 , \sphericalangle 3$

(2) $\sphericalangle 1 , \sphericalangle 2 , \sphericalangle 4$

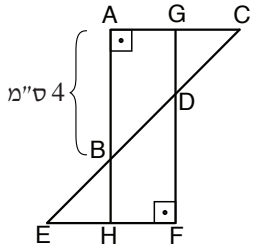
(3) $\sphericalangle 1 , \sphericalangle 4 , \sphericalangle 5$

(4) אף לא אחת מהשלשות הנ"ל

---

10. ABC ו-DEF הם משולשים שווי שוקיים וחופפים.
EB = BD = DC.

על פי נתונים אלו ונתוני הסרטוט,
מה שטח המלבן AHFG (בסמ"ר)?



(1) $8\sqrt{2}$

(2) 12

(3) 14

(4) 16

---

11. מכונה לייצור סוכריות יכולה לעבוד בהספק מלא של 10 סוכריות בשנייה או בהספק חלקי של 1 סוכרייה בשנייה. ידוע שהמכונה עבדה 120 שניות ומתוכן מספר השניות שבהן המכונה עבדה בהספק מלא גדול פי 3 ממספר השניות שבהן היא עבדה בהספק חלקי.
כמה סוכריות בסך הכול ייצרה המכונה ב-120 שניות?

(1) 1,200

(2) 930

(3) 840

(4) 620

Magyar	Nederlands	አማርኛ	עברית
háromszög	driehoek	ሳነ ሥስት	משולש
csúcs	top / punt	ነቁጥ (ነጥብ)	קדקוד
szög	hoeken	ዘዊዎች (አንግሎች)	זוויות
egymást fedő egyenlő oldalú háromszögek	gelijkzijdige congruente driehoeken	ልክክ ያሉ ባለአኩል ሳን ሳነ ሥስቶች	משולשים שווי שוקיים וחופפים
terület	vlak(te)	ስፋት/ቦታ	שטח
téglalap	rechthoek	ቀጤ ጎነ አራት	מלבן
kapacitás	capaciteit	አቅም/ችሎታ	הספק

12. Given: $\sqrt{x} - 1 = \frac{a}{\sqrt{x} + 1}$, $0 < x$

$x = ?$

(1) $a + 1$
(2) $a - 1$
(3) $a^2 + 1$
(4) $a^2 - 1$

---

13. There is a game in which the winner receives either 1 point, 2 points or 3 points, and the loser receives 0 points. Two players play against each other, and at the end of the game one wins and the other loses. After a series of games between Abe and Danny, Abe had 6 points and Danny had 4 points. Which of the following pairs of numbers cannot be the number of games that Abe won and the number of games that Danny won?

(1) Abe 5 ; Danny 1
(2) Abe 2 ; Danny 4
(3) Abe 3 ; Danny 3
(4) Abe 5 ; Danny 4

---

14. A and B are letters representing digits between 1 and 9.
The sum of the numbers AAA and BBB is a four-digit number.
What cannot be the value of the product of $A \cdot B$?

(1) 10
(2) 16
(3) 21
(4) 30

English	**Русский**	**Português**	**Deutsch**	**Italiano**
series	серия	uma série	Reihe	serie
pairs	пары	pares	Zahlenpaare	coppie, paia
representing	соответствуют	representam	stehen für	rappresentanti
digits	цифры	algarismos	Ziffern	cifre
sum	сумма	soma	Summe	somma
product	произведение	multiplicação	Produkt	prodotto

12. נתון: $\sqrt{x}-1=\frac{a}{\sqrt{x}+1}$, $0<x$

$x=?$

(1) $a+1$
(2) $a-1$
(3) a^2+1
(4) a^2-1

---

13. כאשר מנצחים במשחק מסוים מקבלים נקודה אחת, 2 נקודות, או 3 נקודות, וכאשר מפסידים מקבלים 0 נקודות. במשחק משחקים שני שחקנים זה מול זה, ובסוף המשחק אחד מהם מנצח והאחר מפסיד. בתום סדרת משחקים בין אבי לדני, היו לאבי 6 נקודות ולדני 4 נקודות. איזה מזוגות המספרים הבאים אינו יכול להיות מספר המשחקים שבהם ניצח אבי ומספר המשחקים שבהם ניצח דני?

(1) אבי 5 ; דני 1
(2) אבי 2 ; דני 4
(3) אבי 3 ; דני 3
(4) אבי 5 ; דני 4

---

14. A ו-B הן אותיות המייצגות ספרות בין 1 ל-9.
סכום המספרים AAA ו-BBB הוא מספר ארבע-ספרתי.
מה לא יכול להיות ערך המכפלה $A \cdot B$?

(1) 10
(2) 16
(3) 21
(4) 30

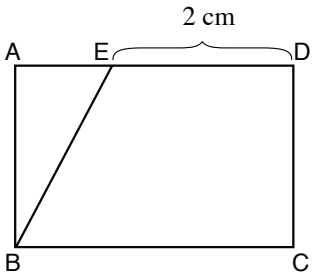
Magyar	Nederlands	አማርኛ	עברית
sorozat	reeks - serie	ተከታታይ	סדרה
pár	getallenparen	ጥንዶች	זוגות
megfelelnek	staan voor	ይወክላሉ	מייצגות
számok	cijfers	አኀዞች/ቁጥሮች	ספרות
összeg	som	ድምር	סכום
szorzat	vermenigvuldiging	ብዜት	מכפלה

go on to the next page המשך לעמוד הבא

15. Given: ABCD is a rectangle.

$$\frac{\text{area of triangle ABE}}{\text{area of rectangle ABCD}} = \frac{1}{6}$$

Based on this information and the information in the figure, the length (in cm) of line segment AE is -



(1) 1

(2) $\frac{1}{2}$

(3) $\frac{1}{3}$

(4) $\frac{1}{6}$

16. Given: $x + y + z = a$
$x + 2y + 3z = b$

$x - z = ?$

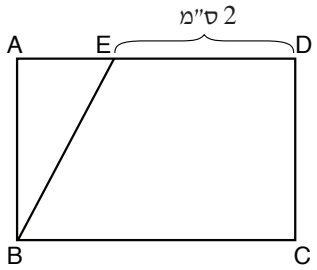
(1) $a + b$
(2) $3b - a$
(3) $2b + a$
(4) $2a - b$

English	Русский	Português	Deutsch	Italiano
length	длина	comprimento	Länge	lunghezza
line segment	отрезок	segmento de reta	Strecke	segmento

15. נתון: ABCD הוא מלבן.

$$\frac{\text{שטח המשולש ABE}}{\text{שטח המלבן ABCD}} = \frac{1}{6}$$

על פי נתונים אלו ונתוני הסרטוט, אורך הקטע AE (בס"מ) הוא -



(1) 1

(2) $\frac{1}{2}$

(3) $\frac{1}{3}$

(4) $\frac{1}{6}$

---

16. נתון: $x + y + z = a$
$x + 2y + 3z = b$

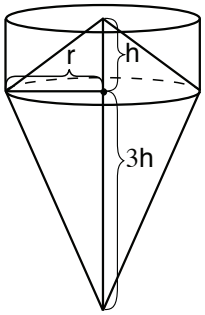
$x - z = ?$

(1) $a + b$
(2) $3b - a$
(3) $2b + a$
(4) $2a - b$

Magyar	Nederlands	አማርኛ	עברית
hossz	lengte	ርዝመት	אורך
szakasz	lijn AE	ጉማጅ መሥመር	קטע

17. Two cones with a base radius of r are joined together. The altitudes of the cones are h and $3h$. The cone with altitude h is inscribed in a cylinder whose base is identical to the base of the cone (see figure).

$$\frac{\text{sum of volumes of the two cones}}{\text{volume of cylinder}} = ?$$



(1) 1

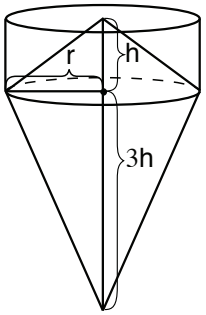
(2) 2

(3) $\frac{3}{2}$

(4) $\frac{4}{3}$

English	Русский	Português	Deutsch	Italiano
cones	конусы	cones	Kegel	coni
base	основание	base	Grundfläche	base
radius	радиус	raio	Halbmesser	raggio
altitudes	высоты	alturas	Höhen	altezze
inscribed	вписан	está contido	eingeschrieben	inscritto
cylinder	цилиндр	cilindro	Zylinder	cilindro
volume	объем	volume	Inhalt	volumi

17. מחברים שני חרוטים שרדיוס בסיסם r. גובהי החרוטים h ו-3h. החרוט שגובהו h חסום בתוך גליל שבסיסו זהה לבסיס החרוט (ראה סרטוט).



$$? = \frac{\text{סכום הנפחים של שני החרוטים}}{\text{נפח הגליל}}$$

(1) 1

(2) 2

(3) $\frac{3}{2}$

(4) $\frac{4}{3}$

Magyar	Nederlands	አማርኛ	עברית
kúpok	kegels	ልቃቂቶች/ቅምብቦች	חרוטים
alap	basis - grondvlak	መሠረት	בסיס
sugár	radius - straal cirkel	ሬዲየስ	רדיוס
magasság	hoogtes	ከፍታዎች	גבהים
benne van, berajzolt	beschreven in	ውስጠ – ነክ	חסום
henger	cylinder	ሲሊንዴር (በርሜሎ)	גליל
térfogat	inhoud	ይዘት	נפח

go on to the next page המשך לעמוד הבא

18. Danny asked Sheila and Edith whether they would like to go to dinner with him. The probability that Sheila will say yes is $\frac{1}{10}$. The probability that Sheila will say yes and that Edith will also say yes is $\frac{1}{15}$. Sheila and Edith's answers are independent of each other.

What is the probability that Edith will say yes?

(1) $\frac{1}{30}$

(2) $\frac{1}{5}$

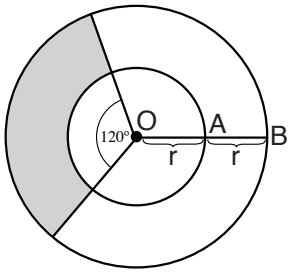
(3) $\frac{3}{5}$

(4) $\frac{2}{3}$

---

19. The accompanying figure shows two circles which have a common center O.
OA is a radius of the smaller circle.
OB is a radius of the larger circle, and intersects the inner circle at point A.
Based on this information and the information in the figure,

$$\frac{\text{area of smaller circle}}{\text{shaded area}} = ?$$



(1) 1

(2) 2

(3) $\frac{1}{3}$

(4) $\frac{1}{2}$

English	Русский	Português	Deutsch	Italiano
probability	вероятность	probabilidade	Wahrscheinlichkeit	probabilità
independent	не зависят	independentes	unabhängig	indipendenti

18. דני שאל את שולה ועידית אם הן רוצות לסעוד עִמו. ההסתברות ששולה תענה "כן" היא $\frac{1}{10}$. ההסתברות ששולה תענה "כן" וגם עידית תענה "כן" היא $\frac{1}{15}$. התשובות של שולה ועידית אינן תלויות זו בזו.

מה ההסתברות שעידית תענה "כן"?

(1) $\frac{1}{30}$

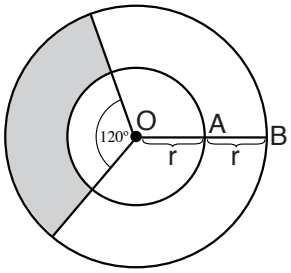
(2) $\frac{1}{5}$

(3) $\frac{3}{5}$

(4) $\frac{2}{3}$

---

19. בסרטוט שלפניך שני מעגלים בעלי מרכז משותף O.
OA הוא רדיוס במעגל הקטן.
OB הוא רדיוס במעגל הגדול, העובר דרך הנקודה A.
על פי נתונים אלו ונתוני הסרטוט,



$? = \frac{\text{שטח המעגל הקטן}}{\text{השטח הכהה}}$

(1) 1

(2) 2

(3) $\frac{1}{3}$

(4) $\frac{1}{2}$

Magyar	Nederlands	አማረኛ	עברית
valószínűség	waarschijnlijkheid	የመሆን ዕድል (ይሆንታ)	הסתברות
nem függnek egymástól	onafhankelijk	ጥገኛ ያልሆኑ (ኢ-ጥገኞች)	אינן תלויות

Quantitative Comparisons (Questions 20-25)

Questions 20-25 consist of pairs of quantities. In each question, one quantity appears in column A and a second quantity appears in column B. The third column sometimes provides additional information about the quantities in columns A and B. **This information may be essential for answering the question.** Compare the two quantities, using the additional information (if provided) to determine which one of the following is true:

(1) the quantity in column A is greater
(2) the quantity in column B is greater
(3) the two quantities are equal
(4) there is not enough information to determine the relationship between the two quantities

For each question, mark the number of the answer you have chosen in the appropriate place on the answer sheet.

	Column A	Column B	Additional Information
20.	The area of the circle (in cm^2)	Twice the diameter of the circle (in cm)	Given: a circle with a radius of r cm
21.	Half the number of students in the class	The number of black-haired, blue-eyed students in the class	There are more black-haired students than blond students in the class. $\frac{4}{5}$ of the black-haired students have blue eyes.
22.	$\lvert a \rvert$	$\lvert b \rvert$	$\frac{b}{a} < \frac{a}{b}$ $0 < a$ $b < 0$

English	**Русский**	**Português**	**Deutsch**	**Italiano**
circle	круг	círculo	Kreis	cerchio
diameter	диаметр	diâmetro	Durchmesser	diametro
half	половина	metade	Hälfte	metà del

השוואה כמותית (שאלות 20-25)

השאלות 1-6 מורכבות מזוגות של ביטויים. בכל שאלה, ביטוי אחד מופיע בטור א, וביטוי שני בטור ב.
בטור שלישי מופיע לעתים מידע נוסף הנוגע לזוג הביטויים שבטורים א ו-ב. **המידע הנוסף עשוי להיות חיוני לפתרון השאלה**. עליך להשוות בין שני הביטויים, אגב הסתייעות במידע הנוסף (אם הוא קיים), ולקבוע אם:

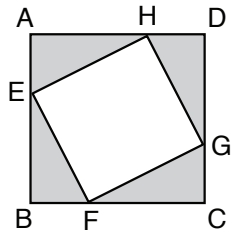
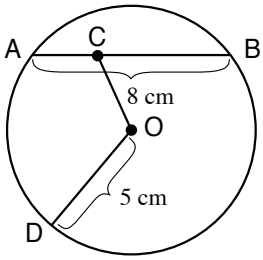
(1) הביטוי שבטור א גדול יותר
(2) הביטוי שבטור ב גדול יותר
(3) שני הביטויים שווים זה לזה
(4) המידע הנתון אינו מספיק כדי לקבוע איזה מהנ"ל הוא יחס הגדלים בין הביטויים

לאחר שבחרת באפשרות שנראית לך נכונה, סמן את מספרה במקום המתאים בגיליון התשובות.

	טור א	טור ב	מידע נוסף
.20	שטח המעגל (בסמ"ר)	פעמיים קוטר המעגל (בס"מ)	נתון מעגל שרדיוסו r ס"מ
.21	מחצית ממספר התלמידים בכיתה	מספר התלמידים שחורי השֵׂער בעלי העיניים הכחולות בכיתה	בכיתה יש יותר תלמידים שחורי שֵׂער מתלמידים בלונדינים. $\frac{4}{5}$ משחורי השֵׂער הם בעלי עיניים כחולות.
.22	$\lvert a\rvert$	$\lvert b\rvert$	$\frac{b}{a} < \frac{a}{b}$ $0 < a$ $b < 0$

Magyar	Nederlands	አማርኛ	עברית
kör	cirkel	ክብ	מעגל
átmérő	middellijn / diameter	ክብን የሚያጋምስ (ዲያሜትር)	קוטר
fele	helft	ግማሽ	מחצית

(1) the quantity in column A is greater
(2) the quantity in column B is greater
(3) the two quantities are equal
(4) there is not enough information to determine the relationship between the two quantities

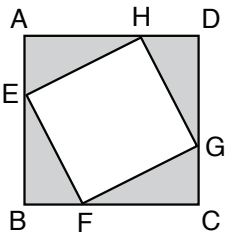
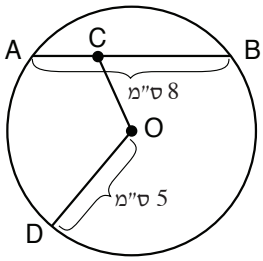
	Column A	Column B	Additional Information
23.	The area of square EFGH	The sum of the shaded areas	 ABCD and EFGH are squares. E, F, G and H are points that divide each side of square ABCD in a ratio of 1 : 2 .
24.	OC	4 cm	 O is the center of the circle. OD is a radius of the circle. C is a point on chord AB.
25.	m	n	n and m are integers. $2^n = 3^m$

English	Русский	Português	Deutsch	Italiano
shaded	закрашенные	escuras	grau	di colore scuro
side	сторона	aresta	Seite	lato
chord	хорда	corda	Sehne	corda
integers	целые числа	números inteiros	ganze Zahlen	numeri interi

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

(1) הביטוי שבטור א גדול יותר
(2) הביטוי שבטור ב גדול יותר
(3) שני הביטויים שווים זה לזה
(4) המידע הנתון אינו מספיק כדי לקבוע איזה מהנ"ל הוא יחס הגדלים בין הביטויים

	טור א	טור ב	מידע נוסף
.23	שטח הריבוע EFGH	סכום השטחים הכהים	 ABCD ו-EFGH הם ריבועים. E, F, G ו-H הן נקודות המחלקות כל צלע בריבוע ABCD ביחס של 2 : 1.
.24	OC	4 ס"מ	 O הוא מרכז המעגל. OD הוא רדיוס במעגל. C היא נקודה כלשהי על המיתר AB.
.25	m	n	n ו-m הם מספרים שלמים. $2^n = 3^m$

Magyar	Nederlands	አማርኛ	עברית
besatírozott	donkere - grijze	የተጠቆሩት	כהים
oldal	zijde	ጎን	צלע
húr	lijn AB	አውታር	מיתר
egész számok	hele getallen	ድፍን ቁጥሮች	מספרים שלמים

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

Section 2: Verbal Reasoning

This section contains 27 questions.
The time allotted is 25 minutes.

This section consists of several types of questions: analogies, sentence completions, logic and reading comprehension. Each question is followed by four possible responses. Choose the one which best answers the question and mark its number in the appropriate place on the answer sheet.

Note: The words appearing against a gray background are translated into several languages at the bottom of the page.

Analogies (Questions 1-8)

Each of the following questions contains a pair of words in bold type. Find the relationship between the meanings of these two words, and then choose from among the possible responses the one in which the relationship between the two words is most similar to the relationship you have found.
Note: The order of the words in each pair is significant.

1. intended : accidentally -

(1) desired : willingly
(2) waited : patiently
(3) was meticulous : off-handedly
(4) looked forward to : eagerly

---

2. measurable : to measure -

(1) necessary : to forego
(2) low : to raise
(3) active : to act
(4) tangible : to feel

English	Русский	Português	Deutsch	Italiano
accidentally	ненамеренно	acidentalmente	versehentlich	erroneamente
was meticulous	был точным	foi meticuloso	es genau nehmen	era meticoloso
eagerly	с нетерпением	impacientemente	sehnlich	con impazienza
to forego	отказываться	abrir mão, ceder	verzichten	rinunciare
tangible	ощутимый	tangível	fühlbar	tangibile

פרק 2 : חשיבה מילולית

בפרק זה 27 שאלות.
הזמן המוקצב הוא 25 דקות.

בפרק זה סוגים שונים של שאלות: אנלוגיות, השלמת משפטים, היגיון והבנת הנקרא. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה המתאימה ביותר לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

שים לב: המילים המופיעות על רקע אפור מתורגמות לכמה שפות בתחתית העמוד.

אנלוגיות (שאלות 1-8)

בכל שאלה יש זוג מילים מודגשות. מצא את היחס בין המשמעויות של שתי המילים האלה, ובחר מתוך התשובות המוצעות את זוג המילים שהיחס ביניהן הוא הדומה ביותר ליחס שמצאת.
שים לב: יש חשיבות לסדר המילים בזוג.

1. התכוון : בשגגה -

(1) התאווה : בנפש חפצה
(2) המתין : באורך רוח
(3) דקדק : כלאחר יד
(4) ציפה : בכיליון עיניים

---

2. מדיד : למדוד -

(1) נחוץ : לוותר
(2) נמוך : להגביה
(3) פעיל : לפעול
(4) מוחשי : לחוש

Magyar	Nederlands	አማርኛ	עברית
nem szándékosan	bij vergissing per ongeluk	በድንገት/ሳያስበው	בשגגה
pontos volt	was nauwkeurig	ጥንቁቅ	דקדק
türelmetlentül	met verlangen	በጉጉት	בכיליון עיניים
lemondani vmről	afstand doen van	መተው	לוותר
érzékelhető	voelbaar	ተጨባጭ	מוחשי

3. **mosquito net : to be bitten -**

(1) stair : to climb
(2) railing : to fall
(3) doorknob : to enter
(4) shutter : to close

---

4. **assemble a crowd : to congregate -**

(1) implore : to refuse
(2) justify : to be right
(3) teach : to know
(4) fundraise : to be miserly

---

5. **hair : to remove lice -**

(1) bush : to prune
(2) garden : to weed
(3) stone : to clear stones
(4) pit : to dig

English	Русский	Português	Deutsch	Italiano
to be bitten	был ужален	foi picado	gestochen werden	esser punto
railing	перила	parapeito	Geländer	ringhiera
shutter	ставня	persiana	Jalousie	serranda
to congregate	собираются	congregar-se	sich zusammenrotten	radunare
implore	упрашивает	insistir	anflehen	insiste
fundraise	собирает пожертвования	levantar fundos	Spenden sammeln	raccoglie fondi/ offerte
to be miserly	скупцы	pães-duros	geizig	(essere) avari
to remove lice	вычесывать	tirar piolhos	entlausen	spidocchiare
to prune	подстригать	podar	stutzen	potare
to weed	полоть	cortar a grama	jäten	diserbare
to clear stones	очищать от камней	tirar as pedras	entsteinen	togliere pietre
pit	яма	fosso	Grube	pozzo, fossa

3. **פילָה : נעקץ -**

(1) מדרגה : טיפס
(2) מעקה : נפל
(3) ידית : נכנס
(4) תריס : הגיף

4. **מקהיל : מתגודדים -**

(1) מפציר : מסרבים
(2) מצדיק : צודקים
(3) מלמד : יודעים
(4) מתרים : קמצנים

5. **שֶׁער : לפלות -**

(1) שיח : לגזום
(2) גינה : לעשב
(3) אבן : לסקל
(4) בור : לחפור

Magyar	Nederlands	አማረኛ	עברית
megcsipték	gestoken worden	ተነደፈ	נעקץ
korlát	hek, omheining	መደገፊያ	מעקה
redöny	luik (raam)	መከለያ	תריס
összegyülnek	samenscholen	ይሰበሰባሉ	מתגודדים
kérlel	smeekt	ይለማመጣል	מפציר
adományt gyüjt	fundraiser	ገንዘብ ማሰባሰብ	מתרים
fukar	gierigaards	ስስታሞች	קמצנים
kifésülni	ontluizen	መቀመል	לפלות
metszeni(fát)	snoeien	መከርከም	לגזום
gyomlálni	wieden (onkruid)	ማረም	לעשב
kiszedni a köveket a földből	stenen wegruimen	ድንጋዮችን ለቅሞ ማውጣት	לסקל
gödör	put - kuil	ጉድጓድ	בור

6. **was enslaved : slave -**

(1) got dressed : is clothed
(2) entered stealthily : thief
(3) endangered himself : dangerous
(4) feigned illness : ill

---

7. **architect : lived in -**

(1) poet : wrote
(2) mailman : sent
(3) scriptwriter : viewed
(4) judge : sentenced

---

8. **pregnancy : conception -**

(1) wakefulness : awaking
(2) walking : crawling
(3) inhaling : exhaling
(4) rotting : ripening

English	Русский	Português	Deutsch	Italiano
was enslaved	был обращен в рабство	subjugou-se	unterworfen	divenne schiavo
entered stealthily	прокрался	entrou sorrateiramente	sich einschleichen	entrò di nascosto
feigned illness	притворился больным	fingiu-se doente	sich krank stellen	si finse malato
conception	зачатие	concepção	Empfängnis	concepimento
awaking	пробуждение	despertar	Erwachen	risveglio
rotting	гниение	apodrecimento	Fäulnis	marciume

6. **השתעבד : עֶבד -**

(1) התלבש : לָבוש
(2) התגנב : גנב
(3) הסתכן : מסוכן
(4) הִתחלה : חולה

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7. **אדריכל : התגורר -**

(1) משורר : כתב
(2) דוור : שלח
(3) תסריטאי : צפה
(4) שופט : גזר

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8. **היריון : התעברות -**

(1) ערות : יקיצה
(2) הליכה : זחילה
(3) שאיפה : נשיפה
(4) ריקבון : הבשלה

Magyar	Nederlands	አማርኛ	עברית
rabságba ejtettė	onderwierp zich	ባሪያ ተደረገ	השתעבד
lopózkodott	sloop naar binnen	አድብቶ ገባ	התגנב
betegnek adta ki magát	veinsde als ziek	የታመመ አስመሰለ	הִתחלה
megtermékenyítés	bevruchting	መጸነስ/ማርገዝ	התעברות
ébresztés	ontwaken	መንቃት	יקיצה
rohadás	verrotting	መበስበስ	ריקבון

Sentence Completions (Questions 9-15)

In each question, there is a sentence (or sentences) with several parts missing, followed by four possible ways of completing the sentence. Complete each sentence, using the response that is most appropriate.

9. Who is the author who chose to publish the novel *The King* under the pen name Boris Shevedin? Some claim that it _____ Joshua Katz. In my opinion, there is _____ substance to this claim, because _____ Katz's style, it is _____ of Katz to hide behind a pseudonym.

(1) cannot be / no / even though the style of *The King* is nothing like / uncharacteristic
(2) is most probably / no / not only is the style of *The King* nothing like / also uncharacteristic
(3) cannot be / some / not only is the style of *The King* reminiscent of / also characteristic
(4) is most probably / no / even though the style of *The King* is similar to / characteristic

---

10. I have no _____ my original decision in your regard, _____ of your claims, _____ led me to conclude that I was _____ in my original decision.

(1) doubt that I must reverse / as I have become convinced of the validity / and because other serious considerations have / not mistaken
(2) intention of reversing / for I have become convinced of the validity of most / even though I could think of no further reasons that would have / mistaken
(3) doubt that I must reverse / even though I am not convinced of the validity of most / because other serious considerations have not / mistaken
(4) intention of reversing / even though I have become convinced of the validity of several / because other serious considerations have / not mistaken

---

11. Tomorrow's weather will be _____ than yesterday's, _____ . However, the weather conditions expected _____ for a trip to the countryside; therefore, _____ to go on a picnic the day after tomorrow.

(1) worse / but will improve in two days' time / then will still be too poor / you are advised not
(2) better / and will improve even more in two days' time / in a week's time will be particularly pleasant / you are advised
(3) worse / and the day after tomorrow will be even worse / in a week's time will be good enough / you are advised
(4) better / and is expected to improve slightly later on in the week / then will still be too poor / there is no reason not

---

English	**Русский**	**Português**	**Deutsch**	**Italiano**
pen name	литературный псевдоним	nome fictício	Dichtername	firma, firmandosi
pseudonym	псевдоним	pseudônimo	Pseudonym	pseudonimo
reverse	отменить	voltar atrás	umstoßen	pentirsi, cambiare idea

השלמת משפטים (שאלות 9-15)

בכל שאלה יש משפט שכמה חלקים ממנו חסרים, ולאחריו ארבע אפשרויות להשלמתו. עליך להשלים כל משפט בעזרת האפשרות המתאימה ביותר.

9. מי היה הסופר שבחר לפרסם את הרומן "המלך" תחת שם העט "בוריס שבדין"? יש הטוענים כי _____ שמדובר ביהושע כץ. לדעתי _____ ממש בטענתם, שהרי _____ סגנונו של כץ, _____ לכץ להסתתר מאחורי שם בדוי.

(1) לא ייתכן / אין / אף על פי שהסגנון של "המלך" רחוק מ- / אין זה אופייני
(2) סביר ביותר / אין / לא זו בלבד שהסגנון של "המלך" רחוק מ- / אף אין זה אופייני
(3) לא ייתכן / יש / לא זו בלבד שהסגנון של "המלך" מזכיר את / אף אופייני
(4) סביר ביותר / אין / אף על פי שהסגנון של "המלך" דומה ל- / אופייני

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10. אין לי כל _____ לחזור בי מהחלטתי הראשונה בעניינכן, _____ טענותיכן, _____ הביאו אותי לידי מסקנה כי _____ בהחלטתי המקורית.

(1) ספק כי עליי / שכן שוכנעתי בצדקת / ומשום ששיקולים כבדי משקל נוספים / לא שגיתי
(2) כוונה / מכיוון ששוכנעתי בצדקת חלק הארי של / וזאת אף שלא עלו בדעתי כל טעמים אחרים ש- / שגיתי
(3) ספק כי עליי / אף שלא שוכנעתי בצדקת חלק הארי של / וזאת מכיוון ששיקולים כבדי משקל נוספים לא / שגיתי
(4) כוונה / הגם ששוכנעתי בצדקת אחדות מ- / וזאת משום ששיקולים כבדי משקל אחרים / לא שגיתי

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11. מזג האוויר מחר יהיה _____ יותר משהיה אתמול, _____ . עם זאת, תנאי מזג האוויר הצפויים _____ ליציאה לחיק הטבע, ולכן _____ תצא לפיקניק מחרתיים.

(1) קשה / אך בעוד יומיים הוא ישתפר / אז עדיין יהיו קשים / מומלץ כי לא
(2) נוח / ובעוד יומיים הוא ישתפר אף יותר / בעוד שבוע יהיו נוחים במיוחד / מומלץ כי
(3) קשה / ומחרתיים הוא ייעשה גרוע אף יותר / בעוד שבוע יהיו טובים דיים / מומלץ כי
(4) נוח / והוא צפוי להשתפר מעט בהמשך השבוע / אז עדיין יהיו קשים / אין מניעה כי

Magyar	Nederlands	አማርኛ	עברית
frói álnév	psuedoniem	የብዕር ስም	שם עט
kitalált név	pseudoniem	የውሸት ስም	שם בדוי
megváltoztatni	terugkomen op	ሐሳብን መቀየር	לחזור בי

12. Based on my long acquaintance with Eric, I assumed that he would not _____ to help me paint my apartment. Since his behavior _____ my expectations, _____ my opinion about Eric _____ a really true friend.

(1) be willing / did not match / I have changed / not being
(2) refuse / matched / I have revised / being
(3) agree / matched / it reinforced / being
(4) refuse / matched / I remained firm in / not being

---

13. At first I thought that Dr. Dishon, author of the book on the psychology of the masses _____ justified in his demand to be recognized as the first to have dealt with the subject. _____ discovered that there _____ for the claims about the existence of earlier studies on the subject , I certainly would have _____ that opinion.

(1) was / Had I / was no basis whatsoever / abandoned
(2) was / Had I not / was some basis / continued to hold
(3) was not / Had I / were no grounds / continued to hold
(4) was not / Had I not / was no basis / abandoned

---

14. Even though non-conventional methods of construction have many _____ compared to conventional methods, they are being used _____ , as houses built with these methods _____ in great demand _____ their high cost.

(1) drawbacks / more widely / are not / despite
(2) advantages / less extensively / are not / due to
(3) advantages / more extensively / are / despite
(4) drawbacks / more extensively / are not / due to

English	**Русский**	**Português**	**Deutsch**	**Italiano**
be willing	соизволит	concordaria	bereit sein	esser disposto
refuse	откажется	recusaria	sich weigern	rifiutare
firm	непоколебим	firme	fest	fermo (di opinione)
masses	массы	massas	Massen-	masse
no grounds	нет оснований	não há sentido	unbegründet	essere infondate
drawbacks	недостатки	desvantagens	Nachteile	svantaggi, carenze
due to	вследствие	devido a	wegen	a causa di

12. על סמך היכרותנו רבת השנים, הנחתי שאריק לא _____ לסייע לי בסיוד דירתי. מאחר שהתנהגותו _____ את ציפיותיי, _____ דעתי שלפיה אריק _____ חבר נאמן באמת.

(1) ייאות / לא תאמה / שיניתי את / אינו
(2) יסרב / תאמה / חזרתי בי מ- / הוא
(3) יסכים / תאמה / התחזקתי ב- / הוא
(4) ימאן / תאמה / נשארתי איתן ב- / אינו

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13. בתחילה סברתי כי _____ הצדקה לתביעתו של ד"ר דישון, מחבר הספר על הפסיכולוגיה של ההמון, להכיר בזכות הראשונים שלו על העיסוק בנושא. _____ גיליתי כי _____ לטענות בדבר קיומן של עבודות מחקר קודמות באותו נושא, בוודאי הייתי _____ להחזיק בדעה הזאת.

(1) יש / אילו / אין כל בסיס / מפסיק
(2) יש / לולא / יש בסיס / ממשיך
(3) אין / אילו / אין שחר / ממשיך
(4) אין / לולא / אין בסיס / מפסיק

---

14. אף שלשיטות בנייה שאינן קונבנציונליות יש _____ רבים בהשוואה לבנייה הקונבנציונלית, השימוש בהן הולך ו_____ , משום שהבתים שנבנו באמצעותן _____ לביקוש רב _____ עלותם הגבוהה.

(1) חסרונות / מתרחב / אינם זוכים / למרות
(2) יתרונות / פוחת / אינם זוכים / בשל
(3) יתרונות / מתפשט / זוכים / למרות
(4) חסרונות / מתפשט / אינם זוכים / בשל

Magyar	Nederlands	አማረኛ	עברית
megfelelő	bereid	**ዝኽሪ ማለት**	ייאות
elutasítja	zal weigeren	**እንቢ ይላል**	יסרב, ימאן
rendületlen	standvastig	**ጽኑ**	איתן
tömeg	massa's	**ብዙኃን**	המון
megalapozatlan	ongegrond	**ምንም ምክንያት**	אין שחר
hátrány	nadelen - gebreken	**እንቅፋቶች/ጉዳቶች**	חסרונות
következtében, miatt	wegens	**በ...ምክንያት**	בשל

15. According to Japanese law, _____ a state commission of inquiry can require witnesses to appear before it and force them to present relevant documents. It is therefore _____ to understand why the Japanese government's decision _____ content itself with appointing an ordinary investigative committee to inquire into a sensitive matter of public importance was interpreted as a measure aimed _____ ascertaining the truth.

(1) only / difficult / to / at calming the general atmosphere rather than
(2) only / easy / to appoint such a commission and not / at calming the general atmosphere rather than
(3) even an ordinary investigative committee and not only / difficult / to / at calming the general atmosphere rather than
(4) only / difficult / to appoint such a commission and not / at

---

Logic (Questions 16-21)

16. In a conversation between Norman and Ruth, Norman told Ruth something. In response Ruth said to him, "If you have finished crossing the river, why not leave the boat behind?"

Which of the following alternatives is most probably what Norman told Ruth?

(1) Norman told Ruth that he had taken a tutor to help him study for the chemistry test, and after doing well on the test, he thanked the tutor and they parted.
(2) Norman told Ruth that he was still taking driving lessons even though he had already failed five driving tests.
(3) Norman, who recently returned from a trip to Brazil, told Ruth that on his trip he had made friends with an Israeli fellow, and that they were still getting together.
(4) Norman told Ruth that he was continuing to attend meetings of the support group that he had joined in order to overcome his fear of tests, even though he had completely rid himself of this fear.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
force	заставить	forçar	zwingen	costringere
was interpreted	была истолкована	foi interpretada	gedeutet wurde	fu interpretata
measure	мера	processo	Maßnahme	misura, atto
failed	потрепел неудачу	foi reprovado	durchgefallen	non superare (esami)
rid himself of	избавился от	livrou-se do	ablegen	sbarazzarsi di

15. לפי החוק היפני, _____ ועדת חקירה ממלכתית יכולה לחייב עדים להופיע לפניה ולכפות עליהם להציג מסמכים רלוונטיים. _____ אפוא להבין מדוע החלטתה של ממשלת יפן _____ בהקמת ועדת בדיקה רגילה לחקירת עניין בעל רגישות וחשיבות ציבורית התפרשה כמהלך שנועד _____ בירור האמת.

(1) רק / קשה / להסתפק / להרגעת הרוחות ולא ל-

(2) רק / קל / להקים ועדה כזו ולא להסתפק / להרגעת הרוחות ולא ל-

(3) גם ועדת בדיקה רגילה ולא רק / קשה / להסתפק / להרגעת הרוחות ולא ל-

(4) רק / קשה / להקים ועדה כזו ולא להסתפק / להביא לידי

היגיון (שאלות 16-21)

16. בשיחה בין נועם לרותי סיפר נועם לרותי דבר-מה, ורותי שאלה אותו בתגובה: "אם סיימת לחצות את הנהר, מדוע אינך משאיר מאחוריך את הסירה?".

מתוך האפשרויות הבאות, איזו אפשרות היא <u>המתאימה ביותר</u> להיות הדבר שנועם סיפר לרותי?

(1) נועם סיפר לרותי שהוא התכונן לבחינה בכימיה בעזרת מורה פרטית, וכי לאחר שעמד בבחינה בהצלחה הוא נפרד מן המורה בהכרת תודה

(2) נועם סיפר לרותי שהוא ממשיך לקחת שיעורי נהיגה אף על פי שכבר נכשל בחמישה מבחני נהיגה מעשיים

(3) נועם, שחזר לא מכבר מטיול בברזיל, סיפר לרותי כי פגש בטיול בחור ישראלי והתיידד עמו, וכי הוא ממשיך להתראות אתו גם כעת

(4) נועם סיפר לרותי שהוא מוסיף לבוא לפגישות של קבוצת התמיכה, שפנה אליה כדי להתגבר על הפחד שלו מבחינות, אף על פי שכבר נפטר כליל מן הפחד

Magyar	Nederlands	አማርኛ	עברית
kényszeríteni	dwingen	ማስገደድ	לכפות
megmagyarázta	werd geïnterpreteerd	ተተረጎመ	התפרשה
lépés	maatregel	እርምጃ	מהלך
kudarcot vall	gezakt	ወደቀ	נכשל
megszabadult vmtől	kwijtgeraakt	ተላቀቀ	נפטר מן

17. Hannah, Miriam and Dana are three sisters of different ages. Whenever they are asked their names, each gives her own name or the name of an older sister.
Once, when all three were asked their names, two of them replied, "Hannah."

Which situation is not possible?

(1) Dana is the middle sister.
(2) Miriam is the oldest sister.
(3) Hannah is the youngest sister.
(4) Miriam is the middle sister.

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18. Eli: "All people with curly hair enjoy Hassidic music."
Dan: "That's not so. Joe, for example, has curly hair, but in fact he plays golf."

On which of the following assumptions could Dan have based his disagreement with Eli?

(1) There are no people who enjoy Hassidic music and also play golf.
(2) Not everyone who plays golf has curly hair.
(3) Only people who enjoy Hassidic music have curly hair.
(4) People who do not play golf enjoy Hassidic music.

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19. It has long been known that city life causes people who live in the city to be more ambitious and competitive than people who do not live in the city. A new study has found that the inhabitants of rural villages located far from the city are less ambitious and competitive than are inhabitants of rural villages that are close to the city.

Which of the following is not a possible explanation for the new finding?

(1) The closer the geographical proximity of a rural village to a city, the greater is the proportion of its inhabitants who work in the city and who spend most of the day there.
(2) The closer a rural village is to the city, the greater the cost of housing in the village. Therefore, people living near the city must have substantial financial means, which are generally attained by being ambitious and competitive.
(3) The less ambitious and competitive a person is to begin with, the greater the likelihood that he will prefer living in a rural village rather than in the city.
(4) The majority of people who have lived most of their lives in the city and move to a rural village prefer to move to villages that are relatively close to a city.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
disagree	не соглашался с	discordou	Widerspruch	era in disaccordo
proximity	близость	proximidade	Nähe	prossimità
have substantial financial means	обладают значительными денежными средствами	ter posses	Wohlhabend	avere buoni mezzi economici
attained	накапливаются	são acumuladas	was erreicht wird	vengono ottenuti
likelihood	шансы	probabilidades	Chancen	probabilità

17. חנה, מרים ודנה הן שלוש אחיות שגיליהן שונים זה מזה. בכל פעם ששואלים אותן לשמותיהן, כל אחת מהן אומרת את שמה או נוקבת בשמה של אחות מבוגרת ממנה.
פעם אחת, כשנשאלו השלוש לשמותיהן, ענו שתיים מהן "חנה".

מה לא ייתכן?

(1) דנה היא האחות האמצעית
(2) מרים היא האחות הבכורה
(3) חנה היא האחות הצעירה
(4) מרים היא האחות האמצעית

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18. אלי: "כל האנשים המתולתלים אוהבים מוזיקה חסידית."
דן: "לא נכון. יוסי, למשל, מתולתל, אבל הוא דווקא משחק גולף."

על איזו מההנחות הבאות היה דן יכול להתבסס כאשר חלק על דבריו של אלי?

(1) אין אנשים שגם אוהבים מוזיקה חסידית וגם משחקים גולף
(2) לא כל האנשים שמשחקים גולף הם מתולתלים
(3) רק האנשים שאוהבים מוזיקה חסידית הם מתולתלים
(4) אנשים שאינם משחקים גולף אוהבים מוזיקה חסידית

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19. זה זמן רב ידוע כי אורח החיים בעיר גורם לאנשים להיות הישגיים ותחרותיים יותר מאנשים שלא גרים בעיר.
במחקר חדש נמצא כי תושביהם של יישובים כפריים המרוחקים מהעיר, מתאפיינים ברמות הישגיות ותחרותיות נמוכות בהשוואה לתושביהם של יישובים כפריים הסמוכים לעיר.

איזה מההסברים הבאים אינו הסבר אפשרי לממצא החדש?

(1) ככל שהקִרבה הגאוגרפית של יישוב כפרי לעיר גדֵלה, כך גדֵל שיעור תושביו העובדים בעיר ושוהים בה ברוב שעות היום
(2) עלות הדיור ביישובים הכפריים גבוהה יותר ככל שגדֵלה קִרבתם לעיר, כך שהמתגוררים סמוך לעיר חייבים להיות בעלי אמצעים, שלרוב נצברים בזכות נטייה להישגיות ולתחרותיות
(3) ככל שאדם פחות הישגי ותחרותי מלכתחילה, כך עולים הסיכויים שהוא יעדיף את המגורים ביישוב כפרי על פני המגורים בעיר
(4) רוב האנשים שהתגוררו רוב חייהם בעיר ועוברים להתגורר ביישוב כפרי, מעדיפים לעבור ליישובים הקרובים יחסית לעיר

Magyar	Nederlands	አማርኛ	עברית
nem értett egyet	van mening verschilde	አለመስማማት	חלק על
közelség	nabijheid	ቅርበት	קִרבה
jelentős pénzügyi eszközökkel rendelkeznek	welgesteld	ብዙ ገንዘብ ያለው	בעלי אמצעים
felhalmozódnak	wordt bereikt verkregen	ይጠራቀማሉ	נצברים
esély	waarschijnlijkheid (kans)	ዕድል	סיכויים

20. The inhabitants of Manchukia are divided into two tribes: Members of one of the tribes always lie, and members of the other tribe sometimes tell the truth and sometimes lie.
Debby met an inhabitant of Manchukia who made a statement that enabled her to know which tribe he belonged to.
This statement could have been -

(1) "I have never spoken even one true statement."
(2) "Whoever claims that I always lie is a liar."
(3) "I sometimes tell the truth."
(4) "I never lie."

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21. Given: Esther, who smokes, is in the habit of using the flowerpots in her home as ashtrays. Sammy does not smoke. The flowers in Esther's flowerpots grow much better than those in Sammy's flowerpots.
Conclusion: Cigarette ash helps flowers grow.

Which of the following pieces of information could support this conclusion?

(1) Gail, Sammy's wife, smokes and scatters the ashes in his flowerpots every day.
(2) Sammy is more careful than Esther about giving his flowers the right amounts of water and fertilizer.
(3) Esther's flowerpots contain only geraniums, which flourish even under difficult conditions.
(4) Sammy keeps his flowers in flowerpots that are cheaper than those Esther uses for her flowers.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
ash	пепел	cinzas	Asche	cenere
scatters	разбрасывает	espalha	verstreut	sparge

20. תושבי מנצ'וקיה נחלקים לשני שבטים: בני השבט האחד משקרים תמיד, ובני השבט האחר לפעמים דוברים אמת ולפעמים משקרים.
דבורה פגשה בתושב מנצ'וקיה, ושמעה ממנו משפט שאִפשר לה לדעת לאיזה שבט הוא שייך.
ייתכן שמשפט זה היה -

(1) "מעולם לא אמרתי אפילו משפט אמיתי אחד"

(2) "שקרן מי שטוען שאני משקר תמיד"

(3) "לפעמים אני דובר אמת"

(4) "איני משקר לעולם"

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21. נתון: הפרחים בעציצים שבביתה של אסתר המעשנת, הנוהגת להשתמש בעציצים כבמאפרות, משגשגים הרבה יותר מהפרחים בעציצים שבביתו של שמואל, שאינו מעשן.
מסקנה: אפר של סיגריות מסייע להתפתחותם של פרחים.

איזה מהנתונים הבאים עשוי לחזק את המסקנה?

(1) גילה, אשתו של שמואל, מעשנת ומפזרת את האפר בעציציו מדי יום ביומו

(2) שמואל מקפיד יותר מאסתר להשקות ולדשן את פרחיו במידה הראויה

(3) בעציציה של אסתר מצויים רק פרחי גרניום, שמשגשגים גם בתנאים קשים

(4) שמואל מחזיק את פרחיו בעציצים זולים מהעציצים שבהם אסתר מחזיקה את פרחיה

Magyar	Nederlands	አማረኛ	עברית
hamu	as	አመድ	אפר
szétszór	strooit	ትበትናለች	מפזרת

Reading Comprehension (Questions 22-27)

Read the text below carefully, and answer the questions that follow.

(1) Many religions base themselves on what they term "miracles" as one of the ways of proving the existence of God. Accordingly, dramatic, unexplainable events, which are perceived as deviating from the laws of nature, are attributed to the will of an omnipotent God. The belief in miracles is contrary to the view that the natural order and the laws of nature cannot be violated under any (5) circumstance. Is it possible to bridge the gap between these two approaches? The 18th-century philosopher William Paley argued that it was. According to him, the Divine image is not unidimensional: It incorporates within it constancy, as reflected in the order and laws of nature, as well as richness and color, which find expression in the form of miracles. In attempting to resolve the contradiction between the two approaches, Paley was in fact trying to simultaneously (10) defend both the laws of nature and deviations from these laws.

The philosopher Baruch Spinoza took a more consistent approach. His view of the discrepancy between the perception of a natural, stable order, and the accounts in the Scriptures of deviations from this order, was based on two arguments: First – that the ancients had poor powers of distinction, and as a result, their accounts suffered from mistakes and exaggerations. He argued (15) that they did not understand what was happening, and gave mistaken interpretations of the phenomena that they observed. His second argument deals with the conventional interpretation of the Scriptures. According to him, matters that are presented in the Scriptures in the form of metaphors and parables are taken literally by conventional commentaries.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
miracles	чудеса	milagres	Wunder	miracoli
deviating	является исключением	que não se enquadra	abweichen von	devianti
omnipotent	всесильный	onipotente	allmächtig	onnipotente
be violated	нарушаются	são violados	verletzt werden	esser trasgredite
gap, discrepancy	различие	discrepância	Unterschied Diskrepanz	distanza, discrepanza
constancy	стабильность	constância	Beständigkeit	stabilità
resolve	уладить	resolver	lösen, beheben	risolvere
contradiction	противоречие	contradição	Widerspruch	contraddizione
consistent	последовательная	consistente	Konsequent	coerente
powers of distinction	наблюдательность	poder de distinção	Wahrnehmungs-fähigkeit	capacità di distinguere
parables	аллегории	parábolas	Gleichnisse	parabole
literally	буквально	literalmente	wörtlich	alla lettera

הבנת הנקרא (שאלות 22-27)

קרא בעיון את הקטע הבא, וענה על השאלות שאחריו.

(1) אחת הדרכים שבהן דתות רבות מנסות להוכיח את דבר קיומו של האל היא התבססות על מה שהן מכנות "נִסים". דרך זו מייחסת אירועים דרמטיים בלתי מוסברים, שנתפסים כדבר החורג מחוקיות הטבע, לרצונו של האל הכול יכול. האמונה בהתרחשותם של נסים מנוגדת לתפיסה שלפיה הסדר הטבעי וחוקי הטבע אינם יכולים להיות מופרים בשום מצב. האם אפשר לגשר על הפער בין שתי התפיסות? ויליאם פאלי, פילוסוף בן המאה
(5) ה-18, טען שכן. לדבריו, דמותו של האל אינה חד-גונית: מתקיימים בה זה לצד זה יציבות, שבאה לידי ביטוי בסדר ובחוקיות שבטבע, ועושר וצבעוניות, שבאים לידי ביטוי בנסים. בניסיונו ליישב את הסתירה בין שתי התפיסות ניסה פאלי, למעשה, להגן בעת ובעונה אחת גם על חוקיות הטבע וגם על החריגה מחוקיות זו.

עמדתו של הפילוסוף ברוך שפינוזה הייתה עקיבה יותר. השקפתו בנוגע לפער שבין תפיסת הסדר הטבעי היציב
(10) ובין הדיווחים שבכתבי הקודש בדבר חריגות מסדר זה, התבססה על שתי טענות: האחת - כושר האבחנה של הקדמונים היה דל, ולכן דיווחיהם לקו בטעויות ובהגזמות. לטענתו, הם לא הבינו את המתרחש, ונתנו פרשנות מוטעית לתופעות שצפו בהן. טענתו השנייה נוגעת לפרשנות הקונבנציונלית של כתבי הקודש. לטענתו, דברים שכתבי הקודש מציגים בדרך של דימויים ומשלים, הפרשנות הקונבנציונלית תופסת כפשוטם.

Magyar	Nederlands	አማርኛ	עברית
hcsodák	wonderen	ተአምራት	נִסים
kivétel	afwijkt van	የሚያፈነግጥ	חורג
mindenható	almachtige	ሁሉን የሚችል	כול יכול
megszeg (törvényt)	geschonden	ይጣሳሉ	מופרים
különbség, eltérés	kloof	ልዩነት	פער
stabilitáa	stabiliteit	ቅንነት	יציבות
felold (konfliktust)	opheffen	መፍታት	ליישב
ellentmondás	tegenstrijdigheid	ቅራኔ	סתירה
következetes	consequent	ዘላቂ	עקיבה
megfigyelő képesség	waarnemingsvermogen	የመለየት ኃይል	כושר אבחנה
allegóriák	parabellen	ምሳሌያዊ አባባሎች	משלים
szószerint	letterlijk	ቃል በቃል	כפשוטם

David Hume was another philosopher who took a skeptical view of the existence of miracles. He argued that the laws of nature were formulated on the basis of man's widest and most constant experience. They therefore reflect the highest degree of probability that can be determined by experience. If so, what degree of probability may be ascribed to the existence of miracles, if we prove their existence by relying on experience? According to Hume, the probability is virtually nil. Nevertheless, it should be noted that Hume does not totally rule out the possibility that miracles have or will occur. His arguments relate only to the degree of probability to be ascribed to such a possibility. It follows from Hume's ideas that one should not adhere to a belief in miracles. On the other hand, there is the possibility that miracles may occur, and one should therefore not adopt a position that rules out this possibility in advance. This state is one of agnosticism – perpetual suspended judgment with regard to this issue.

The philosopher Blaise Pascal argued that agnosticism is an undesirable state for a person to be in, and one should therefore avoid it. According to him, an individual must acknowledge the fact that he will always be in a state of ignorance with regard to the occurrence of miracles, and thus also with regard to the existence of God. Consequently, he says that a person should gamble on the existence of God and observe his commandments. The price of this gamble is not a high one, and thus, should the believer discover that he made a wrong choice, he will not have lost much. But, if the gamble should prove to be right, the person who chose this path will be rewarded with eternal life in the world to come. Pascal's reasons for preferring a belief in the existence of God are utilitarian ones, and as such have been criticized both by those who believe in God's existence and by those who deny it. Many philosophers who believe in the existence of God argue that their belief is absolute and should not be justified on the basis of considerations taken from other fields. Philosophers who do not believe in God have questioned the validity of the utilitarian consideration. They argue that even if there is a God, there is no reason to assume that he would reward only those who observe the commandments of one particular religion over another. Moreover, it is unlikely that God would reward people who believe in him purely for reasons of personal benefit.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
skeptical	скептическая	cético	zweiflerisch	scettica
were formulated	были сформулированы	foram formulados	formuliert wurden	furoni formulate
probability	вероятность	probabilidade	Wahrscheinlichkeit	probabilità
be determined	вытекает	que é determinada	abgeleitet werden	essere determinata
nil	нулевая	nula	gleich Null	nulla
adhere	придерживаться	aderir	anhängen	aderire, credere
perpetual suspended judgment	бесконечная отсрочка суждения	suspensão perpétua de julgamento	beständig aufgeschobenes Urteil	sospensione perpetua di giudizio
gamble	сделать ставку	apostar	wetten auf	scommessa, scommettere
utilitarian	прагматические	proveitosos	nützlichkeitsbestimmt	utilitaristici
deny	отрицают	negam	leugnen	negano l'esistenza
validity	правомочность	validade	Gültigkeit	validità
reward	вознаградит	recompensará	belohnen	ricompenserà

הוגה דעות נוסף שהחזיק בעמדה ספקנית בנוגע לקיומם של נסים היה דיוויד יוּם. לדבריו, חוקי הטבע נוסחו תוך התבססות על הניסיון הרחב ביותר והיציב ביותר של האדם. לפיכך, הם משקפים את דרגת הסבירות הרבה ביותר הנגזרת מהניסיון. אם כך, איזו דרגה של סבירות אפשר לייחס לקיום הנס, אם אנו מוכיחים אותו תוך הישענות על הניסיון? לדברי יוּם, הסבירות כמעט אפסית. עם זאת, חשוב לציין כי יוּם אינו שולל כליל את האפשרות שנסים התרחשו או יתרחשו. טיעוניו נוגעים רק למידת הסבירות שיש לייחס לאפשרות זו. מדברי יוּם נגזר שאל לו לאדם לדבוק באמונה בנסים. מאידך קיימת האפשרות שיתרחשו נסים, ולכן אל לו לנקוט עמדה השוללת אפשרות זו מראש. מצב זה הוא מצב של אגנוסטיציזם - השהיית שיפוט מתמדת - בנוגע לסוגיה זו.

הפילוסוף פסקל טען שמצב זה של אגנוסטיציזם אינו רצוי לאדם, ולכן עליו להשתחרר ממנו. לדבריו, על האדם להכיר בעובדה שהוא לעולם יימצא במצב של אי-ידיעה בדבר התרחשותם של נסים, ומכאן גם בדבר קיומו של האל. לכן, הוא אומר, כדאי לאדם להמר על קיומו של האל, ולקיים את מצוותיו. מחירו של הימור זה אינו גבוה, וכך אם יתברר כי הוא היה שגוי, המאמין לא יפסיד הרבה. אך אם יתברר כי ההימור היה נכון, יזכה הבוחר בו בחיי נצח בעולם הבא. נימוקיו של פסקל בדבר העדפת האמונה בקיום האל הם נימוקים תועלתיים, ובתור שכאלה זכו לביקורת גם מצד המאמינים באל וגם מצד הכופרים בקיומו. הוגי דעות רבים המאמינים בקיום האל טענו כי אמונתם מוחלטת, וכי אין להצדיקה באמצעות שיקולים הלקוחים מתחום שמחוצה לה. הוגי דעות שאינם מאמינים באל הטילו ספק בתוקפו של השיקול התועלתי. לטענתם, גם אם קיים אל, אין כל סיבה להניח שהוא יתגמל דווקא את מי שקיימו את מצוותיה של דת מסוימת ולא אחרת, ויתרה מזאת, לא סביר שהאל יתגמל בני אדם שהאמינו בו משיקולי תועלת אישית בלבד.

Magyar	Nederlands	አማረኛ	עברית
kételkedő	sceptische	ተጠራጣሪ	ספקנית
megfogalmazták	waren geformuleerd	ተደነገጉ የመሆን ዕድል (ይሆንታ)	נוסחו
valószínűség	waarschijnlijkheid	ይወሰናል	סבירות
következik	wordt afgeleid	ምንም/ዜሮ	נגזרת
nem valószínű	nihil	መጣበቅ	אפסית
kitartani	aanhangen	የማያቋርጥ ፍርድ	לדבוק
itélkezés végnélküli késleltetése	eeuwig opgeschort oordeel	የማያቋርጥ ፍርድ	השהיית שיפוט מתמדת
hazárdirozni	gokken, gok	ቁማር ተጫወተ	להמר, הימור
pragmatikusak	utilitair	ጠቃሚ	תועלתיים
tagadják	loochenaars	ይክዳሉ	כופרים
érvényesség	geldigheid	ተገቢነት	תוקף
megjutalmazza	zal belonen	ይካሳል	יתגמל

go on to the next page המשך לעמוד הבא

Questions

22. According to Paley -

(1) the laws of nature and deviations from these laws exist side by side, reflecting different properties that characterize God
(2) the laws of nature exist irrespective of God, whereas miracles reflect the will and the deeds of an omnipotent God
(3) there are no laws of nature because God is a multidimensional and colorful figure
(4) the fact that miracles can always occur testifies to God's constancy

---

23. Which of the following can be understood from Spinoza's arguments, as presented in the second paragraph?

(1) There is really no contradiction between the two approaches presented in the first paragraph, as it has already been proven that miracles have never occurred.
(2) The conventional interpretation of the Scriptures perceives what is written in them the way it was meant to be perceived.
(3) Even someone unfamiliar with the laws of nature can tell whether or not an event that he witnessed can be considered a miracle.
(4) Today there is no evidence of the occurrence of miracles because our powers of distinction are better than those of the ancients.

---

24. Agnosticism, as presented in the text, means -

(1) denial of the existence of God
(2) perpetual undecidedness as to the possibility that miracles occur
(3) that gambling on the existence of God is more worthwhile than the opposite gamble
(4) that the probability of miracles occurring is very low

---

25. The gamble proposed by Pascal -

(1) derives from his belief in God
(2) is based on the benefit that a person would derive from such a gamble
(3) is what makes it possible to perpetually suspend judgment
(4) is what makes the existence of miracles possible

השאלות

22. על פי פאלי -

(1) החוקיות שבטבע והחריגות ממנה קיימות זו לצד זו, כביטוי לתכונות שונות המאפיינות את דמותו של האל
(2) החוקיות שבטבע קיימת ללא קשר לאל, ואילו הנסים מבטאים את רצונו ומעשיו של האל הכול יכול
(3) לא קיימת חוקיות בטבע, מכיוון שדמותו של האל רבגונית וצבעונית
(4) העובדה שתמיד יכולים להתרחש נסים מעידה על יציבותה של דמות האל

---

23. איזו מהטענות הבאות משתמעת מדבריו של שפינוזה, כפי שהם מוצגים בפסקה השנייה?

(1) הסתירה שבין שתי התפיסות המוצגות בפסקה הראשונה אינה קיימת למעשה, מכיוון שכבר הוכח שמעולם לא התרחשו נסים
(2) הפרשנות המקובלת של כתבי הקודש תופסת את הדברים שכתובים בהם כפי שהם היו אמורים להיתפס
(3) גם אדם שאינו מתמצא בחוקי הטבע יכול לומר על התרחשות שהוא עֵד לה אם היא בגדר נס או לא
(4) בימינו אין עדויות על אודות התרחשותם של נסים, משום שכושר האבחנה שלנו טוב משל הקדמונים

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24. משמעות האגנוסטיציזם בהקשר שבו הוא מוצג בקטע היא -

(1) כפירה בקיומו של האל
(2) אי-הכרעה מתמדת בנוגע לאפשרות קיומם של נסים
(3) שההימור על קיומו של האל כדאי יותר מההימור ההפוך
(4) שמידת הסבירות של התרחשותם של נסים נמוכה ביותר

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25. ההימור שפסקל מציע -

(1) נובע מאמונתו באל
(2) מבוסס על התועלת שתצמח לאדם מהימור כזה
(3) הוא שמאפשר את השהיית השיפוט המתמדת
(4) הוא שמאפשר את קיומם של נסים

המשך לעמוד הבא go on to the next page

26. Koblenz, a member of the Bubli religion, read Pascal's writings, and as a result decided to obey the religion's commandments. According to the text, a possible criticism of this step is that -

(1) even if a God exists, there is no reason to assume he would favor the believers of the Bubli religion in particular
(2) even if a God exists, there is no reason to assume he would reveal himself to his believers through miracles
(3) if a God exists, he would probably prefer his believers to remain in a state of perpetual suspended judgment
(4) if a God exists, he would probably favor those who gambled on his existence

27. Among the approaches presented in the text, which of them negates the existence of miracles?

(1) only Spinoza's approach
(2) only Hume's approach
(3) only Pascal's approach
(4) both Spinoza's and Hume's approaches

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

26. קובלנץ, שהוא בן לדת הבובלית, קרא את כתביו של פסקל, ובעקבות זאת החליט לקיים את מצוותיה. על פי הקטע, ביקורת אפשרית על צעד זה היא:

(1) גם אם קיים אל, אין סיבה לחשוב שהוא יעדיף דווקא את המאמינים בדת הבובלית

(2) גם אם קיים אל, אין סיבה לחשוב שהוא מתגלה למאמיניו באמצעות נסים

(3) אם קיים אל, סביר שהוא יעדיף מצב של השהיית שיפוט מתמדת בקרב מאמיניו

(4) אם קיים אל, סביר שהוא יעדיף את מי שהימרו על קיומו

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27. מתוך העמדות המוצגות בקטע, אילו עמדות שוללות את קיומם של נסים?

(1) רק עמדתו של שפינוזה
(2) רק עמדתו של יוּם
(3) רק עמדתו של פסקל
(4) הן עמדתו של שפינוזה הן עמדתו של יוּם

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

עמוד ריק

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3

SECTION 3 : ENGLISH

This section contains 27 questions.
The time allotted is 25 minutes.

The following section contains three types of questions: Sentence Completion, Restatement and Reading Comprehension. Each question is followed by four possible responses. Choose the response **which best answers the question** and mark its number in the appropriate place on the answer sheet.

Sentence Completions (Questions 1-11)
This part consists of sentences with a word or words missing in each. For each question, choose the answer **which best completes the sentence**.

1. In classic folk tales, fairies are referred to as "the good people" and are described as ____, gentle creatures.
(1) loud (2) ill (3) kind (4) dry

2. "Insanity" is not a medical term, ____ a legal one.
(1) and (2) but (3) then (4) of

3. Although the bite of the American buffalo gnat is not lethal, the pain it causes can be ____.
(1) improbable (2) unbearable (3) involuntary (4) unworthy

3

4. Although the amateur actors had only a short time in which to ____, they gave a polished, competent performance.
(1) confide (2) rehearse (3) deflate (4) presume

5. Samuel Taylor Coleridge's daughter Sara was herself a successful author but became known ____ as the editor of her father's works.
(1) implicitly (2) primarily (3) annually (4) concisely

6. In the traditional English ritual known as "rough music," members of a community would blow horns and bang pots and pans in order to ____ disapproval of their neighbors.
(1) express (2) respect (3) insult (4) confuse

7. A series of maritime disasters has forced governments to adopt stricter ____ to improve safety on cargo ships.
(1) measures (2) accusations (3) referrals (4) destinations

8. If it is written by a famous scientist, a research paper may automatically be granted ____ and not examined critically.
(1) intimidation (2) abstinence (3) harassment (4) credibility

9. An organization called Water Aid has financed the construction of low-cost water and sanitation ____ in many African villages.
(1) facilities (2) surpluses (3) donations (4) boundaries

3

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10. Scientists believe that the world's ____ frog populations could be saved from extinction with the help of modern reproductive technologies.

(1) dwindling (2) invigorating (3) aspiring (4) discriminating

---

11. Etruria, which ____ roughly to the modern region of Tuscany, was the heartland of the ancient Etruscan people.

(1) forecasts (2) maintains (3) corresponds (4) proceeds

Restatements (Questions 12-17)
This part consists of several sentences, each followed by four possible ways of restating the main idea of that sentence in different words. For each question, choose the one restatement **which best expresses the meaning of the original sentence**.

12. The number of smokers in Canada is declining.

(1) There are more smokers in Canada than anywhere else.
(2) Fewer and fewer Canadians are smoking.
(3) Many people in Canada want to stop smoking.
(4) A small number of Canadians have stopped smoking.

---

13. By writing his masterpiece, *The Divine Comedy*, not in Latin but in Italian, the 13th-century poet Dante Alighieri profoundly affected the evolution of European literature.

(1) Dante decided to write *The Divine Comedy* in Italian in spite of the fact that most of the great masterpieces of European literature written during his time were in Latin.
(2) The fact that Dante wrote his masterpiece, *The Divine Comedy*, in Italian instead of in Latin had a significant effect on the development of European literature.
(3) The Italian poet Dante was influenced more by European literature – which was just beginning to develop in his time – than by Latin literature when he wrote *The Divine Comedy*, his masterpiece.
(4) *The Divine Comedy* – Dante's masterpiece – was one of early European literature's most influential works even though it was written in Italian rather than Latin.

---

14. The practice of "baggage reconciliation" – ensuring that each piece of luggage on an international flight actually belongs to a passenger on that flight – remains an important means of combating terrorism on international flights.

(1) Many different methods of fighting terrorism on international flights have been tried, but baggage reconciliation is still the most effective.
(2) One important method of preventing terrorism on international flights continues to be baggage reconciliation.
(3) Baggage reconciliation has helped reduce terrorism on international flights, although such terrorism remains a serious problem.
(4) To combat terrorism on international flights, all possible methods, including baggage reconciliation, must be used.

---

15. The Badarians differed from other Neolithic peoples of Middle and Lower Egypt in that their cemeteries were set apart from their dwellings.

(1) Unlike other Neolithic peoples of Middle and Lower Egypt, the Badarians did not bury their dead near their houses.
(2) The cemeteries of the Badarian people were different from those of other Neolithic peoples of Middle and Lower Egypt.
(3) The Neolithic peoples of Middle and Lower Egypt disagreed with the Badarians about whether the dead should be buried in cemeteries.
(4) The Badarians, in contrast to other Neolithic peoples of Middle and Lower Egypt, buried their dead in buildings that looked like houses.

---

16. Several studies have shown that engaging in unsupervised play helps children learn to negotiate social situations.

(1) According to some researchers, children develop social skills when they play together without adults present.
(2) The ideal way to study children's social behavior is to observe them engaging in unsupervised play.
(3) Several studies have shown that children who play well by themselves also behave well in social situations.
(4) Children who have not learned to negotiate social situations may find it difficult to engage in unsupervised play, according to a number of studies.

---

17. Inexplicably, science writer Cornelia Dean omits from her new book on beaches any discussion of the ongoing scientific controversy over the origin of beach cusps, despite the fact that, in 1994, she published an engrossing article on these cusps and their genesis.

(1) Cornelia Dean wrote a fascinating article in 1994 on beach cusps and how they are formed, but curiously, in her new book on beaches, she fails to discuss the current debate among scientists on the issue.
(2) Despite the interest generated by Cornelia Dean's 1994 article on the genesis of beach cusps, as well as the controversial nature of the topic, her new book on beaches has inexplicably received little attention.
(3) Although Cornelia Dean's new book on beaches contains a great deal of engrossing scientific information, those interested in beach cusps and their origins should instead consult her important 1994 article on the subject.
(4) Inexplicably, Cornelia Dean's new book on beaches ignores the dramatic recent changes in scientists' understanding of beach cusps and their genesis, and simply repeats the information contained in her 1994 article.

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3 3 3

Reading Comprehension

This part consists of two passages, each followed by several related questions. For each question, **choose the most appropriate answer based on the text**.

Text I (Questions 18-22)

There are few areas on earth that have not been extensively explored. Tibet's Chang Tang region, which is currently controlled by China, is one such area. The Chang Tang has remained largely unexplored for two reasons. First, the few people who live there have never had much interest in exploring the region, and foreigners – who did want to explore it – were not allowed to enter the Chang Tang for a period of almost one hundred years. Second, it is a very difficult place to live in or visit. Strong winds blow all year round, winter temperatures drop well below 0º C and, even in summer, night temperatures are around freezing.

At the end of the 19th century, Swedish explorer Sven Hedin travelled through the Chang Tang. He wrote of the region's beauty: "No sight could be more sublime. Every day's march brings discoveries of unimagined beauty." Of its isolation he wrote: "Roads! There are no paths here other than those made by wild animals." He was the last foreigner to enter the region for about a century.

After Hedin's visit, the only way foreigners were able to see the Chang Tang was through satellite images. Finally, in 1988, China allowed author George B. Schaller into the region. Since then, Schaller has travelled thousands of miles by car and camel. He has provided scientists with important information about the plant and animal life of the Chang Tang. He has also helped convince the Chinese government to declare the area a nature reserve so that it will remain protected in the future.

Questions

18. This text is mainly about -

(1) a region in Tibet
(2) living conditions in Tibet
(3) famous explorers in China
(4) Chinese nature reserves

19. One of the "two reasons" mentioned in line 3 is that -

(1) more people are beginning to visit the Chang Tang
(2) there are few unexplored areas of Tibet
(3) foreigners are allowed to enter Tibet
(4) the Chang Tang is a very cold region

---

20. The second paragraph is mainly about -

(1) the isolation of the Chang Tang region
(2) Sven Hedin's impressions of the Chang Tang
(3) the history of the Chang Tang since the 19th century
(4) discoveries made by Westerners in the Chang Tang

---

21. In line 10, "sublime" could be replaced by -

(1) important
(2) difficult
(3) beautiful
(4) distant

---

22. It can be understood that between the end of the 19th century and 1988, foreigners could see -

(1) the Chang Tang only if they were explorers
(2) the Chang Tang only in satellite images
(3) only those parts of the Chang Tang where people lived
(4) only the nature reserve in the Chang Tang

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3 3 3

Text II (Questions 23-27)

Wendy Scott, a 50-year-old British widow, spent twelve years of her life traveling from one hospital to another in Britain and other parts of Europe, pretending to be so ill as to require hospitalization. By her own count, she was admitted as a patient to more than 600 hospitals. Her complaints of agonizing stomach pains were so convincing that many doctors resorted to surgery to help her, and she underwent forty-two operations, several of them life-threatening and all of them unnecessary.

Mrs. Scott's case is one of the most severe examples ever documented of Munchausen syndrome, a rare psychiatric condition in which people feign illness or even induce it in themselves because they crave medical attention. The syndrome was named for Baron Karl Friedrich Hieronymus von Munchausen, an 18th-century war hero who traveled around Germany, telling tall tales of his exploits. Similarly, the people who suffer from Munchausen syndrome wander from one hospital to the next, telling tall tales about their illnesses.

Unlike hypochondria, a condition in which people genuinely believe that they are ill, Munchausen syndrome is a factitious disorder: people know that they are not. Munchausen syndrome should also be distinguished from malingering, in which individuals pretend to be sick in order to avoid work, obtain drugs or collect insurance. People with Munchausen have no external incentives other than a psychological need to assume the role of the patient.

Munchausen syndrome is more complex than the mere fabrication and simulation of symptoms; it stems from severe emotional problems. People with the disorder are usually quite intelligent and resourceful; they are sophisticated with regard to medical practice and are skilled at manipulating their caregivers. It should be remembered, however, that though their deceits are conscious, their motivation and quest for attention are largely unconscious.

Questions

23. The main purpose of the text is to -

(1) compare Munchausen syndrome to other disorders
(2) explain what causes Munchausen syndrome
(3) describe an unusual psychiatric patient
(4) discuss a rare factitious disorder

24. The main purpose of the first paragraph is to ____ Munchausen syndrome.

(1) present the case history of a person with
(2) discuss some possible causes of
(3) show how Wendy Scott recovered from
(4) explain why it is so difficult to treat

---

25. It can be inferred that "exploits" (line 11) is closest in meaning to -

(1) severe illnesses
(2) heroic acts
(3) long journeys
(4) interesting stories

---

26. The main purpose of the third paragraph is to -

(1) explain the external incentives for people with Munchausen syndrome
(2) show that Munchausen syndrome is more serious than hypochondria and malingering
(3) distinguish Munchausen syndrome from hypochondria and malingering
(4) discuss whether patients with Munchausen syndrome know they have a psychiatric condition

---

27. It can be inferred from the last paragraph that Munchausen patients -

(1) know less about medical practice than they think
(2) are convinced that they are actually sick
(3) are often manipulated by their caregivers
(4) do not understand why they want medical attention

אל תהפוך את הדף עד שתקבל הוראה לכך!

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עמוד ריק

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SECTION 4 : ENGLISH

This section contains 27 questions.
The time allotted is 25 minutes.

The following section contains three types of questions: Sentence Completion, Restatement and Reading Comprehension. Each question is followed by four possible responses. Choose the response **which best answers the question** and mark its number in the appropriate place on the answer sheet.

Sentence Completions (Questions 1-11)
This part consists of sentences with a word or words missing in each. For each question, choose the answer **which best completes the sentence**.

1. Human organs, ____ those of children, are sensitive to radiation.
(1) immediately (2) accidentally (3) especially (4) originally

2. Even if their primary purpose is entertainment, rather than education, films and television can have an ____ influence on the public's understanding of historical events.
(1) experienced (2) enormous (3) urgent (4) inferior

3. After many hours of deliberation, the judges reached a ____.
(1) posture (2) fragrance (3) merger (4) verdict

4. ____ Andrés Segovia eventually became one of the greatest classical guitarists of the twentieth century, the first instrument he learned to play was the piano.
(1) Whether (2) Since (3) Although (4) If

5. Pharmaceutical companies in Israel are testing a new class of drugs designed to relieve stiffness in arthritic joints and to restore their ____.
(1) defiance (2) flexibility (3) contamination (4) navigation

6. Most people in Norway do not live in large metropolitan areas, but in towns and villages ____ throughout the countryside.
(1) envisioned (2) conducted (3) scattered (4) abandoned

7. In 1996, relations between the United States and China grew so tense that military ____ seemed inevitable.
(1) intelligence (2) confrontation (3) persuasion (4) assistance

8. Turkey's most productive farmland is in the coastal regions, where the soil is ____ and the climate is mild.
(1) domestic (2) obvious (3) fertile (4) random

9. Fund-raising campaigns initiated by universities are a ____ in Britain, where the government has traditionally provided nearly all the funds for higher education.
(1) target (2) rarity (3) moral (4) bargain

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10. The elderly residents of Azerbaijan's capital, Baku, ____ their city's former opulence with nostalgia.

(1) waste (2) imitate (3) presume (4) recall

11. Though we often ____ the importance of personal appearance, we tend to judge people by their looks more than we realize.

(1) desire (2) recruit (3) belittle (4) testify

Restatements (Questions 12-17)
This part consists of several sentences, each followed by four possible ways of restating the main idea of that sentence in different words. For each question, choose the one restatement **which best expresses the meaning of the original sentence**.

12. Mosquitoes thrive all over the world, even in the Arctic.

(1) Mosquitoes are not found in the Arctic, but they thrive everywhere else.
(2) Not many animals can survive in the Arctic, but mosquitoes can.
(3) There are fewer mosquitoes in the Arctic than there are in other places.
(4) Mosquitoes flourish everywhere, including the Arctic.

13. Hookworm disease, which is most prevalent in the developing countries of the tropics, is treatable.

(1) Of all the diseases common in the developing countries of the tropics, hookworm disease is the most difficult to treat.
(2) Now that a treatment has been found, fewer people in developing tropical countries will suffer from hookworm disease.
(3) It is possible to treat hookworm disease, which is most common in developing tropical countries.
(4) It is very important to treat hookworm disease, which is widespread in the developing countries of the tropics.

14. As a result of the efforts of professors at the University of Chicago, who for decades have been examining documents pertaining to Chaucer, far more is now known about his life than is known or is ever likely to be known about Shakespeare's.

(1) According to professors at the University of Chicago, Shakespeare's life is much more difficult to study than Chaucer's because many more documents from Chaucer's time exist.
(2) What is now known about Chaucer's life is a great deal more than will probably ever be known about Shakespeare's, due to extensive research conducted by University of Chicago professors.
(3) Professors at the University of Chicago have shown that no matter how many documents relating to the lives of Chaucer and Shakespeare are studied, we will never know everything about these writers.
(4) If the life of Chaucer had not been studied for decades by University of Chicago professors, we would not know as much about it as we do about the life of Shakespeare.

15. Possessing perfect diction is a necessary, but not a sufficient, condition for success as a newscaster.

(1) Although newscasters cannot achieve success without having perfect diction, they must have other qualities as well.
(2) Of the many qualities which contribute to a newscaster's success, perfect diction is the most important.
(3) Although it is desirable for newscasters to have perfect diction, this is not an essential condition for their success.
(4) Newscasters who have perfect diction are more successful than those who do not possess this quality.

---

16. The two issues that have generated the most animated debates among historians of the American Civil War are the causes of the war and the reasons for the Confederates' defeat.

(1) According to historians of the American Civil War, fierce disagreements among the Confederates may have caused the war as well as led to their defeat.
(2) Most historians of the American Civil War are engaged in research on two main issues: the causes of the war and factors in the Confederates' defeat.
(3) Why the American Civil War was fought and why the Confederates lost are the two questions that have prompted the liveliest debates among Civil War historians.
(4) Historians are less interested in the causes of the American Civil War than in its effects, particularly on the defeated Confederates.

---

17. Generally docile when properly trained and handled, camels are nonetheless prone to fits of rage.

(1) Camels are easily trained but have explosive tempers and must be handled carefully.
(2) Camels are difficult to train and handle, but nonetheless, they are useful animals
(3) Unless they are properly trained and handled, camels are prone to sudden fits of rage.
(4) An appropriately trained and handled camel is usually obedient but may still become uncontrollably angry.

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Reading Comprehension

This part consists of two passages, each followed by several related questions. For each question, **choose the most appropriate answer based on the text**.

Text I (Questions 18-22)

Not many years ago, American athletes and entertainers felt obliged to provide free autographs, or signatures, to their fans and admirers, and only a small number of specialists and antique dealers collected the autographs of historical figures. Recently, however, autographs have become a major collectable item, for which many people are willing to pay more than they would for a work of art. Consequently, many athletes and other celebrities are now demanding payment for their signatures.

Autographs are generally divided into three broad categories – history, sports and entertainment – and in each category the term "autograph" is defined somewhat differently. To a historian, the word refers to a document that contains a signature, such as a letter, check, manuscript or contract. To a sports fan, an autograph is any signed object, whether a baseball or a soccer uniform. In the entertainment field, the term is usually associated with a signed photograph.

Some autographs are more valuable than others. A signed baseball bat is generally worth more than a signed ball, which is worth more than a signed ticket stub. For historical autographs, the value depends on the content. A routine letter from Albert Einstein to a little-known correspondent is worth less than $2,000, but the famous scientist's letter warning President Franklin Roosevelt about Germany's nuclear program was recently sold for $220,000.

Autographs have become a major business, and most collectors regard them as a worthwhile investment. But the main reason for collecting autographs remains not a financial but an emotional one: the thrill of having a tangible connection with a famous personality.

Questions

18. The main purpose of the text is to -

(1) describe the three broad categories of autographs
(2) discuss the popularity and value of autographs
(3) compare emotional and financial reasons for collecting autographs
(4) explain why celebrities now demand payment for their autographs

19. "Consequently" in line 5 could be replaced by -

(1) Because autographs are now bought and sold for large amounts of money
(2) Because many celebrities once felt obliged to provide autographs for free
(3) Because only a small number of specialists collected autographs in the past
(4) Because more people now collect autographs than collect works of art

---

20. According to the second paragraph, an "autograph" -

(1) is usually a historical document
(2) does not need to contain a signature
(3) may be a document, object, or picture
(4) is simply another word for "signature"

---

21. According to the third paragraph, the value of a letter depends not only on who signed it but on -

(1) when it was sold
(2) what it says
(3) its length
(4) its age

---

22. In line 21, the word "thrill" is closest in meaning to -

(1) admiration
(2) investment
(3) connection
(4) excitement

---

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Text II (Questions 23-27)

In 1995, a new museum opened in Paris, devoted to the work of French sculptor Aristide Maillol (1861-1944). The museum is located in the Hotel Bouchardon, an 18th-century building where Maillol had his studio between 1919 and 1939. Over the course of its history, the Hotel Bouchardon housed a convent, a cabaret, a fish market, a photographic agency, apartments and artists' studios.

Like the building itself, Maillol's career went through many transformations. Maillol began his artistic career as a painter; however, he was never satisfied with the results of his efforts. In 1893, inspired by the medieval tapestries he saw displayed in museums in Paris, Maillol started creating his own. These were the first of his works to attract serious critical attention. One of them, which was exhibited in Brussels, was greatly admired by the famous French artist Paul Gauguin, who encouraged Maillol to continue in this pursuit. But Maillol's eyesight was eventually damaged by the intense demands of his tapestry making. Afraid of losing his sight completely, Maillol stopped making tapestries and, at the age of 40, turned to sculpture.

It was as a sculptor that Maillol became world famous. Auguste Rodin, the most respected sculptor of the time, said of one of Maillol's creations: "I do not know of any modern piece of sculpture that is of such absolute beauty, absolute purity." The sculpture that Rodin admired, like almost all of Maillol's, was a variation on one theme: the female form. Maillol used figures of women to represent abstract concepts like emotions and natural elements, as in his works *Grief* and *Air*.

Questions

23. The main purpose of the text is to -

(1) describe a new museum devoted to Maillol
(2) explain why Maillol is considered a great artist
(3) discuss the career of the French artist Maillol
(4) compare Maillol's work to that of Gauguin and Rodin

24. The first paragraph mainly discusses the -

(1) building where the Maillol museum is housed
(2) studio Maillol used between 1919 and 1939
(3) earliest influences on Maillol's art
(4) places where Maillol worked and lived in Paris

25. The second paragraph contains a comparison between -

(1) the Hotel Bouchardon and Maillol's career
(2) Maillol's career and Gauguin's career
(3) the Maillol museum and the Hotel Bouchardon
(4) Maillol's paintings and his tapestries

26. In line 10, "them" refers to -

(1) Maillol's paintings
(2) Maillol's tapestries
(3) museums in Paris
(4) exhibits in Brussels

27. The main purpose of the last paragraph is to -

(1) discuss Rodin's influence on Maillol
(2) explain why Maillol sculpted the female form
(3) summarize the story of Maillol's career
(4) discuss Maillol's work as a sculptor

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

Section 5: Verbal Reasoning

This section contains 27 questions.
The time allotted is 25 minutes.

This section consists of several types of questions: analogies, sentence completions, logic and reading comprehension. Each question is followed by four possible responses. Choose the one which best answers the question and mark its number in the appropriate place on the answer sheet.

Note: The words appearing against a gray background are translated into several languages at the bottom of the page.

Analogies (Questions 1-8)

Each of the following questions contains a pair of words in bold type. Find the relationship between the meanings of these two words, and then choose from among the possible responses the one in which the relationship between the two words is most similar to the relationship you have found.
Note: The order of the words in each pair is significant.

1. **to deceive : to be misled -**

(1) to provoke : to show restraint
(2) to embarrass : to feel ashamed
(3) to confuse : to reconsider
(4) to forgive : to apologize

---

2. **numbers : prime number -**

(1) rivers : water
(2) plants : bush
(3) toddlers : children
(4) beaches : sand

English	Русский	Português	Deutsch	Italiano
to deceive	обмануть	enganar	betrügen	ingannare
to be misled	быть обманутым	ser enganado	irregeführt werden	lasciarsi ingannare
to show restraint	сдерживаться	conter-se	sich zurückhalten	contenersi
to reconsider	опомниться	recuperar-se	zurechtrücken	riconsiderare
prime number	простое число	número primo	Primzahl	numero primo
toddlers	младенцы	criancinhas	Kleinkinder	infante

פרק 5 : חשיבה מילולית

בפרק זה 27 שאלות.
הזמן המוקצב הוא 25 דקות.

בפרק זה סוגים שונים של שאלות: אנלוגיות, השלמת משפטים, היגיון והבנת הנקרא. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה המתאימה ביותר לכל שאלה, ולסמן את מספרה במקום המתאים בגיליון התשובות.

שים לב: המילים המופיעות על רקע אפור מתורגמות לכמה שפות בתחתית העמוד.

אנלוגיות (שאלות 1-8)

בכל שאלה יש זוג מילים מודגשות. מצא את היחס בין המשמעויות של שתי המילים האלה, ובחר מתוך התשובות המוצעות את זוג המילים שהיחס ביניהן הוא הדומה ביותר ליחס שמצאת.
שים לב: יש חשיבות לסדר המילים בזוג.

1. להונות : ללכת שולל -

(1) להתגרות : להבליג
(2) לבייש : להיכלם
(3) לבלבל : להתעשת
(4) למחול : להתנצל

---

2. מספרים : מספר ראשוני -

(1) נהרות : מים
(2) צמחים : שיח
(3) פעוטות : טף
(4) חופים : חול

Magyar	Nederlands	አማረኛ	עברית
becsapni	bedriegen	ማታለል/ማጭበርበር	להונות
becsapva lenni	misleid worden	በስሕተት መመራት	ללכת שולל
visszafogni magát	zelfbeheersing tonen	መታቀብ/መቆጠብ	להבליג
meggondolni magág	opnieuw overwegen	እንደገና መመርመር	להתעשת
törzsszámok	priemgetal	ብቸኜ ቁጥር	מספר ראשוני
csecsemők	kleuters	መራመድ የጀመሩ ሕጻናት	פעוטות

3. **matchmaker : marriage -**

(1) driver : license
(2) forecaster : future
(3) commander : victory
(4) gardener : irrigation

4. **dreamt : nightmare -**

(1) erred : mistake
(2) shouted : hoarseness
(3) felt : ache
(4) insulted : insult

5. **water pipe : reservoir -**

(1) air conditioner : air
(2) locomotive : railway cars
(3) string : kite
(4) road : parking lot

English	Русский	Português	Deutsch	Italiano
matchmaker	сваха	casamenteiro	Heiratsvedrmittler	sensale di matrimonio
forecaster	предсказатель	previsor meteorológico	Wettervorhersage	colui che fa previsioni
commander	полководец	comandante	General	comandante
irrigation	поливка	irrigação	Bewässerung	irrigazione
nightmare	кошмар	pesadelo	Alptraum	incubo
erred	ошибся	errou	etw. falsch machen	sbagliò, errò
hoarseness	хрипота	rouquidão	Heiserkeit	raucedine
ache	ощущение боли	dor	Schmerz	dolore
reservoir	водохранилище	reservatório	Wasserreservoir	cisterna d'acqua
locomotive	локомотив	locomotiva	Lokomotive	locomotiva
kite	воздушный змей	pipa, papagaio	Drachen	aquilone

3. **שדכן : נישואין -**

(1) נהג : רישיון
(2) חזאי : עתיד
(3) מצביא : ניצחון
(4) גנן : השקיה

4. **חלם : סיוט -**

(1) שגה : טעות
(2) צעק : צרידות
(3) חש : מֻחוש
(4) עלב : עלבון

5. **צינור מים : מאגר מים -**

(1) מזגן : אוויר
(2) קטר : קרונות
(3) חוט : עפיפון
(4) כביש : חניון

Magyar	Nederlands	አማርኛ	עברית
házasságközvetítő	huwelijksbemiddelaar	አማጭ	שדכן
jós	weervoorspeller	የሚተነብይ	חזאי
hadvezér	bevelhebber / generaal	አዛዥ	מצביא
locsolás	irrigatie	መስኖ	השקיה
rémálom	nachtmerrie	ቅዠት	סיוט
tévedett	een fout begaan, vergiste zich	ተሳሳተ	שגה
rekedtség	heesheid	የድምጽ መጎርነን	צרידות
fájdalom	pijn	ሕመም	מֻחוש
tartály	waterreservoir	የዉሀ ማጠራቀሚያ	מאגר מים
mozdony	locomotief	ባቡሩን የሚጎተዉ (የመጀመሪያዉ ክፍል)	קטר
sárkány	vlieger	ወላንዳ (በክር ተቋጥሮ ባየር ላይ የሚንሳፈፍ ጎማ)	עפיפון

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6. unemployed : to employ -

(1) original : to copy
(2) free : to imprison
(3) sick : to recuperate
(4) guilty : to incriminate

7. evidence : prove -

(1) mystery : solve
(2) advertisement : buy
(3) apology : forgive
(4) example : illustrate

8. entourage : escort -

(1) appetizer : dessert
(2) chain : link
(3) footstool : stool
(4) podium : speaker

English	Русский	Português	Deutsch	Italiano
to recuperate	излечиваться	curar-se	genesen	guarire
to incriminate	обвинять в преступлении	incriminar	belasten	incriminare
evidence	доказательство	evidência	Beweisstück	prova (giuridica)
illustrate	демонстрировать	ilustrar	veranschaulichen	illustrare concretamente
entourage	свита	séquito	das Gefolge	seguito (accompagnatori)
escort	спутник	acompanhante	Begleiter	accompagnatore, scorta
link	звено	elo	Bindeglied	anello (di catena)
footstool	подставка для ног	banquinho	Schemel	sgabello
podium	кафедра	pódio	Bühne	podio

6. מובטל : להעסיק -

(1) מקורי : להעתיק
(2) חופשי : לכלוא
(3) חולה : להירפא
(4) אשם : להפליל

7. ראָיה : להוכיח -

(1) תעלומה : לפענח
(2) פרסומת : לקנות
(3) התנצלות : לסלוח
(4) דוגמה : להמחיש

8. פמליה : בן לוויה -

(1) מתאבן : קינוח
(2) שלשלת : חוליה
(3) הדום : שרפרף
(4) קתדרה : נואם

Magyar	Nederlands	አማረኛ	עברית
meggyógyulni	herstellen - genezen	ማገገም	להירפא
bűncselekménnyel megvádolni	beschuldigen	መወንጀል	להפליל
bizonyiték	bewijsstuk	ማስረጃ	ראָיה
demonstrálni	concreet toelichten	በምሳሌ ማስረዳት	להמחיש
környezetében levő személyek	gevolg (begeleiding van belangrijke persoon)	አጅብ	פמליה
utitárs	begeleider	አጃቢ	בן לוויה
láncszem	schakel	ማያያዣ	חוליה
lábtámasz	voetenbankje	የእግር ማሳረፊያ	הדום
pódium	podium	መድረክ	קתדרה

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Sentence Completions (Questions 9-15)

In each question, there is a sentence (or sentences) with several parts missing, followed by four possible ways of completing the sentence. Complete each sentence, using the response that is most appropriate.

9. Dan left the trial _____ : The judge noted in her verdict that _____ the defense's arguments _____ the evidence presented in court _____ in his favor.

(1) in defeat / even though / were rather convincing, / dissuaded her from ruling
(2) in defeat / in addition to the fact that / were rather weak, / convinced her to rule
(3) victorious / even though / were rather weak, / dissuaded her from ruling
(4) victorious / not only were / rather convincing, but / dissuaded her from ruling

---

10. "Better find out what your future neighbors are like before checking out the merits of a new apartment," my late grandfather used to say. Since my father, who always _____ , _____ when he bought an apartment, we found ourselves living in _____ whose other occupants _____ .

(1) followed my grandfather's advice / deviated from this practice / a magnificent building / treated one another rudely
(2) disobeyed my grandfather / deviated from this practice and went against my grandfather's advice / one of the city's fanciest buildings / were pleasant people
(3) disobeyed my grandfather / did not deviate from this practice even / a tumbledown building / were cultured and polite
(4) followed my grandfather's advice / did not deviate from this practice and followed the spirit of my grandfather's advice even / a beautiful building / treated one another rudely

---

English	Русский	Português	Deutsch	Italiano
in defeat	проиграл	em desvantagem	(Prozess) verloren	perdente
dissuaded	отговорили	dissuadiram-na	davon abbringen	l'avevano dissuasa
ruling	принять решение	decidir, decretar	entscheiden	emettere la sentenza
victorious	выиграл	vitorioso	(Prozess) gewonnen	vincente
deviated	вышел за рамки	desviou	abweichen	deviò
magnificent	отлично выстроенный	magnífico	prächtig	magnifico
rudely	грубость	rudeza	grob, gemein	sgarbatamente
disobeyed	поступить наперекор	desobedecer	zuwiderhandelt	disobbedire
tumbledown	ветхий	quase ruindo	baufällig	cadente, in rovina

השלמת משפטים (שאלות 9-15)

בכל שאלה יש משפט שכמה חלקים ממנו חסרים, ולאחריו ארבע אפשרויות להשלמתו. עליך להשלים כל משפט בעזרת האפשרות המתאימה ביותר.

9. דן יצא מן הדיון בבית המשפט וידו על _____ : בפסק הדין ציינה השופטת כי _____ שטיעוניו של סנגורו היו _____ למדי, הראיות שהוצגו בבית המשפט _____ לפסוק לטובתו.

(1) התחתונה / אף / משכנעים / הניאו אותה מ-
(2) התחתונה / נוסף על העובדה / חלשים / שכנעו אותה
(3) העליונה / אף / חלשים / הניאו אותה מ-
(4) העליונה / לא זו בלבד / משכנעים / הניאו אותה מ-

---

10. "מוטב שתעמוד על טיבם של שכניך המיועדים עוד בטרם תבחן את איכות דירתך החדשה", היה סבי עליו השלום נוהג לומר. מכיוון שאבי, שנהג תמיד _____ של סבי, _____ כשרכש דירה, מצאנו את עצמנו מתגוררים בבניין _____ , ששאר הדיירים בו _____ .

(1) לפעול לפי עצותיו / חרג ממנהגו דווקא / בנוי לתלפיות / נהגו בגסות רוח זה עם זה
(2) להמרות את פיו / חרג ממנהגו ונהג בניגוד לעצתו של סבי דווקא / מן המפוארים בעיר / היו נעימי הליכות
(3) להמרות את פיו / לא חרג ממנהגו גם / מט לנפול / היו תרבותיים ומנומסים
(4) לפעול לפי עצותיו / לא חרג ממנהגו ופעל ברוח עצתו של סבי גם / עשוי לתפארת / נהגו בגסות רוח זה עם זה

Magyar	Nederlands	አማረኛ	עברית
vesztes	de zaak (proces) verloren	በመሸነፍ	ידו על התחתונה
lebeszélték	weerhielden	አንዲያስብ አደረገ	הניאו
döntést hozni	vonnis geven (vellen)	መፍረድ	לפסוק
nyertes	de zaak (proces) gewonnen	አሸናፊ በመሆን	ידו על העליונה
eltért	afweek	አፈነገጠ	חרג
remekül megépített	prachtig	ዕጹብ/ድንቅ	בנוי לתלפיות
durván	grof, brutaal	ብልግና	גסות רוח
megszeg	niet luisterde naar	አልታዘዝም ማለት	להמרות את פיו
ütött-kopott	bouwvallig	ሊወድቅ/ሊፈርስ የተቃረበ	מט לנפול

11. The chairperson of the Council for the Promotion of Quality Films _____ to explain to the producer that the film's release should _____ ; but his efforts were _____ her reaction to his words he understood that nothing would _____ the date of the premiere.

(1) failed in his attempt / be moved forward / not in vain, because from / dissuade her from advancing
(2) tried his utmost / not be delayed any longer / in vain, because from / dissuade her from once again postponing
(3) managed / be delayed / in vain, because from the nature of / induce her to advance
(4) tried his utmost / not be delayed any longer / in vain, because from / induce her to postpone

---

12. I _____ thought that Rina attributed the fact that many men _____ her to her reputation as a rich businesswoman. Therefore, I was _____ to hear her say that, in her experience, most men are _____ women who are financially independent.

(1) always / tend to pursue / surprised / attracted to
(2) never / avoid pursuing / not surprised / deterred by
(3) never / tend to pursue / astonished / attracted to
(4) always / avoid pursuing / surprised / deterred by

---

13. A researcher discovered that increasing the number of hours that subjects spent sleeping caused _____ in their brainwave frequency. Since he knew that people with fertile imaginations typically exhibit _____ brainwave frequency, the researcher hypothesized that the _____ in the number of hours that modern man spends sleeping relative to people in ancient times _____ of imaginative thinking in our time.

(1) a decrease / higher / increase / explains the dwindling
(2) an increase / lower / increase / does not explain the dwindling
(3) a decrease / lower / decrease / explains the flourishing
(4) an increase / higher / increase / does not explain the flourishing

---

English	**Русский**	**Português**	**Deutsch**	**Italiano**
in vain	напрасно	em vão	vergeblich	invano
his utmost	изо всех сил	ao máximo	gab sich die größte Mühe	massimo impegno
induce	заставит	fará com que	dazu veranlassen	causare
attributed	объясняет тот факт	atribui o fato de	schrieb (den Umstand) zu	attribuire (fatto, causa)
pursue	ухаживать	cortejar	ihr den Hof machen	perseguire
deterred by	испытывают страх перед	se esquivam de	abgeschreckt von	esser dissuaso da
increasing, increase	увеличение, рост	aumento	Vergrößern, Zuwachs	aumento
subjects	испытуемые	pacientes	Testpersonen	soggetti esaminati
frequency	частота	freqüência	Frequenz	frequenza
decrease	снижение	redução	Abnahme	calo (di quantità)
dwindling	уменьшение	diminuição	Rückgang, Verringerung	diminuzione

11. יו"ר המועצה לעידוד סרטי איכות _____ להבהיר למפיקה כי _____ את הוצאת הסרט לאקרנים, אולם מאמציו _____ תגובתה לדבריו יכול היה להבין שדבר לא _____ את הקרנת הבכורה.

(1) נכשל בניסיונו / יש לזרז / לא היו לשווא, כי מתוך / יניא אותה מלהקדים
(2) ניסה בכל מאודו / אין לעכב עוד / היו לשווא, כי מ- / יניא אותה מלדחות שוב
(3) הצליח / כדאי לעכב / היו לשווא, כי מנימת / יגרום לה להקדים
(4) ניסה בכל מאודו / אין לעכב עוד / היו לשווא, כי מ- / יגרום לה לדחות

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12. _____ חשבתי שרינה תולה את העובדה שגברים רבים _____ לחזר אחריה בעובדה שהיא ידועה כאשת עסקים עשירה. לכן _____ כששמעתי אותה אומרת כי על פי ניסיונה, מרבית הגברים _____ נשים עצמאיות מבחינה כלכלית.

(1) תמיד / נוהגים / התפלאתי / נמשכים ל-
(2) מעולם לא / נמנעים מ- / לא התפלאתי / נרתעים מ-
(3) מעולם לא / נוהגים / הופתעתי / נמשכים ל-
(4) תמיד / נמנעים מ- / התפלאתי / נרתעים מ-

---

13. חוקר מצא שהגדלת מספר שעות השינה אצל נבדקים גרמה ל _____ בתדירות גלי המוח שלהם. מאחר שידע כי בעלי דמיון מפותח מתאפיינים בתדירות _____ של גלי המוח, שיער החוקר כי _____ מספר שעות השינה של האדם המודרני בהשוואה לתקופות קדומות _____ החשיבה הדמיונית בתקופתנו.

(1) ירידה / גבוהה / הגידול ב- / מסביר את התמעטות
(2) עלייה / נמוכה / הגידול ב- / אינו מסביר את התמעטות
(3) ירידה / נמוכה / צמצום / מסביר את פריחת
(4) עלייה / גבוהה / הגידול ב- / אינו מסביר את פריחת

Magyar	Nederlands	አማርኛ	עברית
fölöslegesen	voor niets, tevergeefs	በከንቱ	לשווא
teljes erőből	zijn uiterste best	የተቻለውን ያህል	בכל מאודו
kényszeríti	zal veroorzeken	ይገፋፋል	יגרום
megnagyarázza ezt a tényt	het feit toeschrijft aan	መደምደም	תולה את העובדה
udvarolni	het hof maken	መከታተል (መጀንጀን)	לחזר
félnek tőle	afschrikken van	ይፈራሉ	נרתעים מ-
nagyítás, növekedés	vermeerdering	መጨመር/ጭማሪ	הגדלה, עלייה
kísérleti személyek	testpersonen	ተመራማሪዎች	נבדקים
gyakoriság	frequentie	ድግግሞሽ	תדירות
csökkenés	daling	ቅነሳ	ירידה
csökkenés	vermindering	እየቀነሰ መሄድ	התמעטות

14. _____ known that my dog _____ chained to the wall of the house, I would _____ agreed with the police investigator who claimed that the dog was apparently _____ away.

(1) If I had / was / not have / stolen and did not run
(2) Had I not / was not / have / not stolen but instead ran
(3) If I had / was not / have / not stolen but instead ran
(4) Had I not / was / have / stolen and did not run

---

15. The claim that the workers' committee is more concerned with preventing any changes in the factory than with promoting the workers' welfare _____ when the workers' committee _____ a factory-wide strike in response to the changes initiated by management, _____ these changes _____ work conditions.

(1) was reinforced / decided to call / since / did not include any improvement in
(2) was discredited / refrained from calling / since / involved a worsening of
(3) was reinforced / decided to call / even though / included an improvement in
(4) was reinforced / refrained from calling / even though / did not involve a worsening of

---

English	Русский	Português	Deutsch	Italiano
promoting	улучшить	promover	fördern	promuovere
welfare	благосостояние	bem-estar	das Wohl	benessere
to call a strike	прекратить	fazer greve	Streik ausrufen	proclamare uno sciopero
initiated	инициатива	tomou a iniciativa	veranlasst	intrapresi
was reinforced	получила поддержку	foi reforçada	wurde bestätigt	fu sostenuto/a
was discredited	была ослаблена	foi enfraquecida	wurde widerlegt	fu screditato/a
refrained from	воздержался от	deixou de	sich enthalten	si astenne da

14. _____ ידעתי שכלבי _____ קשור בשלשלת לקיר הבית, _____ מסכים עם חוקר המשטרה שטען כי ככל הנראה הכלב _____ ברח.

(1) אילו / היה / לא הייתי / נגנב ולא
(2) לולא / לא היה / הייתי / לא נגנב אלא
(3) אילו / לא היה / הייתי / לא נגנב אלא
(4) לולא / היה / הייתי / נגנב ולא

15. הטענה שוועד העובדים מעוניין למנוע כל שינוי במפעל יותר משהוא מעוניין לקדם את רווחת הפועלים, _____ כאשר ועד העובדים _____ להשבית את העבודה במפעל בתגובה לשינויים שיזמה ההנהלה, _____ ששינויים אלה _____ בתנאי העבודה.

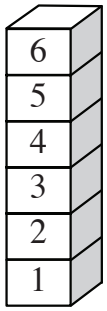
(1) זכתה לחיזוק / החליט / משום / לא כללו שיפור
(2) נתערערה / נמנע מ- / משום / כללו הרעה
(3) זכתה לחיזוק / החליט / אף על פי / כללו שיפור
(4) זכתה לחיזוק / נמנע מ- / אף על פי / לא כללו הרעה

Magyar	Nederlands	አማርኛ	עברית
elősegíteni	bevorderen	ማስከበር	לקדם
jólét	welzijn	ደህንነት	רווחה
megszüntetni	staking uitroepen	የሥራ ማቆም አድማ ማድረግ	להשבית
kezdeményezett	ondernomen	ሐሳብ አፈለቀ	יזמה
támogatásra lelt	werd versterkt	ተጠናከረ	זכתה לחיזוק
meggyengült	werd weerlegd	ዝቅ አድርጎ አስገመተ	נתערערה
tartozkodott	weerhield zich van	ታቀበ/ተቆጠበ	נמנע מ-

Logic (Questions 16-21)

16. Joe built a tower out of six blocks (see figure): two are red, two are blue and two are green. It is known that:

- No block is adjacent to another block of the same color.
- Blocks 1 and 3 are red.



Which of the following situations is not possible?

(1) Block 2 is blue and block 6 is green.
(2) Blocks 4 and 6 are green.
(3) Blocks 2 and 5 are blue.
(4) Blocks 2 and 4 are blue.

---

17. Researchers have found that:

- The lifespan of hedgehogs with high levels of the substance alpha in their blood is longer than the lifespan of hedgehogs with lower levels of alpha in their blood.
- Alpha weakens the activity of the substance beta.

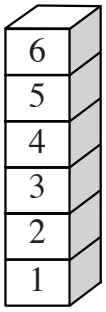
Which of the following hypotheses is consistent with these findings?

(1) Hedgehogs with high levels of beta in their blood will have a longer lifespan than hedgehogs with a relatively low level of this substance.
(2) Consumption of substances that inhibit the activity of alpha will have no effect on the lifespan of hedgehogs.
(3) Spraying a certain area with alpha could cause the death of hedgehogs in that area.
(4) Preventing the body's production of beta can help lengthen the lifespan of hedgehogs.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
adjacent	прилегает	adjacente	grenzt an	adiacente
lifespan	продолжительность жизни	expectativa de vida	Lebenserwartung	longevità
hedgehogs	ежи	ouriço	Igel	porcospini
weakens	ослабляет	enfraquece	schwächt	indebolisce
consistent with	соответствует	é consistente com	vereinbar mit	è coerente con
consumption	потребление	consumo	Verzehr	consumo
inhibit	задерживающие	inibem	aufhalten	che inibiscono
spraying	распыление	a pulverização	Besprühen	il coprire a spruzzo
preventing	предотвращение	o impedimento de	Verhinderung	il prevenire

היגיון (שאלות 16-21)

16. יוסי בנה מגדל משש קוביות (ראה סרטוט): שתיים אדומות, שתיים כחולות ושתיים ירוקות.
ידוע כי:



- שום קובייה אינה צמודה לקובייה שצבעה זהה לצבע שלה.
- קוביות 1 ו-3 הן אדומות.

איזה מהמצבים הבאים אינו אפשרי?

(1) קובייה 2 כחולה וקובייה 6 ירוקה
(2) קוביות 4 ו-6 ירוקות
(3) קוביות 2 ו-5 כחולות
(4) קוביות 2 ו-4 כחולות

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17. חוקרים מצאו כי:
- תוחלת החיים של קיפודים בעלי רמה גבוהה של החומר 'אלפא' בדם גבוהה מתוחלת החיים של קיפודים בעלי רמה נמוכה יותר של החומר 'אלפא' בדם.
- החומר 'אלפא' מחליש את פעולתו של החומר 'ביתא'.

איזו מההשערות הבאות מתיישבת עם ממצאים אלה?

(1) לקיפודים בעלי רמה גבוהה של החומר 'ביתא' בדמם תהיה תוחלת חיים גבוהה יותר מלקיפודים בעלי רמה נמוכה יחסית של החומר
(2) לצריכה של חומרים המעכבים את פעולתו של החומר 'אלפא' לא תהיה השפעה על תוחלת החיים של קיפודים
(3) ריסוס של אזור מסוים בחומר 'אלפא' עשוי לגרום למותם של הקיפודים באותו אזור
(4) מניעת הייצור של החומר 'ביתא' בגוף יכולה לסייע בהארכת תוחלת החיים של קיפודים

Magyar	Nederlands	አማርኛ	עברית
egymás melletti	grenst aan	አጠገብ መሆን	צמודה
élet hossz	levensverwachting	የሕይወት ዕድሜ መጠን	תוחלת חיים
sündisznók	egels	ጃርቶች	קיפודים
gyengíti	verzwakt	ይቀንሳል	מחליש
megfelel	komt/stemt overeen met	አብሮ ይሄዳል	מתיישבת עם
fogyasztás	consumptie/verbruik	ፍጆታ	צריכה
késleltetik	remmen	የሚያጨናግፉ	מעכבים
befújás	bespuiting	መርጨት	ריסוס
megelőzés	verhindering	መከልከል/ማገድ	מניעה

18. Eric does not climb mountains with snowcapped peaks unless it is early in the day or there is at least one other hiker with him, but he will not do so if both conditions exist simultaneously.

In which of the following situations does it necessarily follow that Eric will not climb a mountain?

(1) It is early, Eric is hiking alone, and the mountain peak is snowcapped.
(2) It is late, Eric is hiking with Tom, and the mountain peak is snowcapped.
(3) It is early, Eric is hiking with Tom, and the mountain peak is not snowcapped.
(4) It is late, Eric is hiking alone, and the mountain peak is snowcapped.

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19. Two statements are given:
A. Every fruit salad contains walnuts.
B. Only salads can contain walnuts.

The existence of a vegetable salad that does not contain walnuts -

(1) refutes statement A but not statement B
(2) refutes statement B but not statement A
(3) refutes both statements
(4) does not refute either of the two statements

English	Русский	Português	Deutsch	Italiano
snowcapped	заснеженная	nevado	schneebedeckt	innevate
peak	вершина	pico	Gipfel	cime
refutes	опровергает	refuta	widerlegt	confuta

18. אריק אינו מטפס על הרים שפסגתם מושלגת, אלא אם כן השעה מוקדמת או שיש אתו לפחות מטייל אחד נוסף, אך לא אם שני התנאים מתקיימים יחד.

באיזה מהמצבים הבאים אריק בהכרח לא יטפס על הר?

(1) השעה מוקדמת, אריק מטייל לבד, ופסגת ההר מושלגת
(2) השעה מאוחרת, אריק מטייל עם תום, ופסגת ההר מושלגת
(3) השעה מוקדמת, אריק מטייל עם תום, ופסגת ההר אינה מושלגת
(4) השעה מאוחרת, אריק מטייל לבד, ופסגת ההר מושלגת

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19. נתונות שתי טענות:
א. בכל סלט פירות יש אגוזים.
ב. רק בסלטים יכולים להיות אגוזים.

קיומו של סלט ירקות שאין בו אגוזים -

(1) מפריך את טענה א', אך לא את טענה ב'
(2) מפריך את טענה ב', אך לא את טענה א'
(3) מפריך את שתי הטענות
(4) אינו מפריך אף אחת משתי הטענות

Magyar	Nederlands	አማርኛ	עברית
havas	met sneeuw bedekt	በበረዶ የተሸፈኑ	מושלגת
csúcsai	top	የተራራ ጫፎች	פסגה
megcáfol	weerlegt	ያስተባብላል/ያፈርሳል	מפריך

20. A researcher who examined famous portraits painted in different periods and in different parts of the world discovered that in most of the portraits one of the subject's eyes is located precisely in the center of the painting. The researcher hypothesized that this phenomenon stems from subconscious sources of inspiration that are common to all mankind.

Which of the following pieces of information could support the researcher's hypothesis?

(1) It is known that the the length and width of many paintings, as we know them today, are not the original measurements, because in many instances, the paintings' edges were cut off when their frames were changed.
(2) The classic art books, studied by many artists over the course of history, devote an extensive section to the importance of placing one of the subject's eyes in the center of the painting.
(3) Most of the portraits that exhibit this phenomenon show the subject in profile.
(4) Amateur photographers tend to focus the camera lens on one of the eyes of the person being photographed.

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21. Every member of the Briza tribe always addresses his relatives solely by a term that denotes their family relationship. For example, he addresses his cousin as "cousin." In addition, he addresses anyone who is not a relative, yet has the same first name as the relative, in the same way. For example, if Danny's grandfather's name is Nat, Danny addresses anyone whose name is Nat as "grandfather" – except for relatives who are not his grandfather.

It is known that Guy's aunt's name is Naomi.

Which of the following is true?

(1) Guy addresses his grandmother Naomi as "aunt."
(2) Guy addresses his mother Naomi as "mother."
(3) Guy addresses his teacher Naomi as "Naomi."
(4) Guy addresses his aunt Naomi as "Naomi."

English	Русский	Português	Deutsch	Italiano
stems	вытекает	provém	herrührt aus	nasce
subconscious	подсознательные	inconscientes	unterbewusst	inconscie
inspiration	вдохновение	inspiração	Inspiration	ispirazione
edges	края	margens	Ränder	bordi
devote	посвящают	devotam	widmen	dedicano
profile	профиль	de perfil	von der Seite	di profilo
amateur	любители	amadores	Hobby-Fotografen	amatori (dilettanti)

20. חוקר שבדק ציורי דיוקן נודעים מתקופות שונות ומאזורים שונים בעולם, גילה כי ברוב הציורים אחת מעיני הדמות ממוקמת בדיוק במרכז הציור. החוקר שיער כי התופעה נובעת מקיומם של מקורות השראה תת-מודעים המשותפים לאנושות כולה.

איזה מהנתונים הבאים עשוי לחזק את השערתו של החוקר?

(1) ידוע כי מידות האורך והרוחב של ציורים רבים, כפי שאנו מכירים אותם היום, אינן מידותיהם המקוריות, שכן במקרים רבים נחתכו שולי הציורים בעת החלפת מסגרותיהם

(2) ספרי האמנות הקלאסיים, שמהם למדו אמנים רבים במרוצת ההיסטוריה, מקדישים פרק נרחב לחשיבות של מיקום אחת מעיני הדמות במרכז הציור

(3) רוב ציורי הדיוקן שבהם התגלתה תופעה זו היו ציורים שבהם הדמות מופיעה בפרופיל

(4) צלמים חובבים נוטים למקד את עדשת המצלמה באחת מעיני האדם המצולם

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21. בשבט בריזה כל אדם מכנה תמיד את קרובי משפחתו רק בכינוי המציין את קרבת המשפחה. למשל, את דוֹדָנו הוא מכנה "דודן". כמו כן, הוא יכנה באותו כינוי גם את כל מי שאינו קרוב משפחה, אם שמו הפרטי זהה לשמו הפרטי של אותו קרוב משפחה. למשל, אם שם סבו של דן הוא נתן, דן מכנה "סבא" את כל מי ששמו נתן - חוץ מקרובי משפחתו שאינם סבו.

ידוע כי שמה הפרטי של דודתו של גיא הוא נעמי.

איזו מהאפשרויות הבאות נכונה?

(1) את סבתו נעמי גיא מכנה "דודה"
(2) את אמו נעמי גיא מכנה "אימא"
(3) את מורתו נעמי גיא מכנה "נעמי"
(4) את דודתו נעמי גיא מכנה "נעמי"

Magyar	Nederlands	አማርኛ	עברית
következik	voortkomt uit	ከ...የተነሣ	נובעת
tudatalatti	onderbewuste	ታኅታይ ንቃተ ኅሊና	תת-מודעים
ihlet	inspiratie	መንፈስ ቀስቃሽ	השראה
szėle	randen	ጠርዞች	שוליים
szentelnek	wijden aan	ያውላሉ	מקדישים
profil	profiel	ጎን	פרופיל
amatőrök	amateurfotografen	አማተር	חובבים

Reading Comprehension (Questions 22-27)

Read the text below carefully, and answer the questions that follow.

Polygraph (lie detector) testing is used regularly in police investigations, even though it is not admissible in a court of law. The person being tested is asked a series of questions, some of them pertaining to the crime he is suspected of committing, and some of them neutral. As he answers the questions, various physiological indicators in his body are measured, such as respiratory rate, heart rate, blood pressure and level of skin conductivity. Polygraph testing is based on the assumption that certain psychological states are accompanied by automatic physiological responses, and that telling a lie is a state that produces more intense physiological responses than the responses characteristic of telling the truth. Theories explaining this difference in physiological response are divided into two schools: one emphasizes emotional factors, while the other stresses cognitive factors (factors connected to the processing of information from the environment and factors connected to thought processes).

The psychologist Davis describes two theories associated with the first school of thought: the threat-of-punishment theory and the conflict theory. According to the threat-of-punishment theory, a subject's heightened physiological response to questions about information that he is trying to hide stems from the fear aroused in him that the lie might be discovered, and as a result he will be punished. According to the conflict theory, these questions produce a psychological conflict between the subject's desire to tell the truth and his desire to lie, and it is this conflict which causes the increase in physiological responsiveness. While these theories provide a satisfactory explanation for the polygraph's capacity to detect the truth in police investigations, the findings of laboratory studies conducted in recent years contradict these theories.

English	**Русский**	**Português**	**Deutsch**	**Italiano**
admissible	приемлема	aceitável	zulässig	accettabile
pertaining	касаются	são pertinentes	sich beziehen auf	riguardanti
indicators	показатели	indicadores	Merkmale	indicatori
produces	дает	produz	hervorbringt	che induce
intense	усиленные	mais intensas	heftigere	intenso/e
detect	выявление	detecção	aufdecken	scoprire (la verità)
contradict	противоречат	contradizem	widersprechen	contraddicono

הבנת הנקרא (שאלות 22-27)

קרא בעיון את הקטע הבא, וענה על השאלות שאחריו.

בדיקת הפוליגרף (גלאי שקר) נמצאת בשימוש תדיר בחקירות משטרתיות, אף שאינה קבילה בבתי המשפט. בבדיקה זו האדם נשאל סדרה של שאלות, שכמה מהן נוגעות לפשע שהוא חשוד בביצועו, וכמה מהן שאלות ניטרליות. כשהוא עונה עליהן, נמדדים בגופו מדדים פיזיולוגיים שונים כגון קצב הנשימה, קצב דפיקות הלב, לחץ הדם ורמת המוליכות החשמלית של העור. ההנחות העומדות בבסיסה של בדיקת הפוליגרף הן כי מצבים פסיכולוגיים מסוימים מלווים בתגובות פיזיולוגיות אוטומטיות, וכי אמירת שקר היא מצב המניב תגובות פיזיולוגיות מוגברות לעומת התגובות המאפיינות אמירת אמת. התאוריות המסבירות הבדל זה בתגובות הפיזיולוגיות מחולקות לשתי אסכולות: האחת מדגישה גורמים רגשיים, והאחרת מדגישה גורמים קוגניטיביים (גורמים הקשורים בעיבוד המידע שמתקבל מהסביבה ובתהליכי חשיבה).

הפסיכולוג דיויס מתאר שתי תאוריות הנמנות עם האסכולה הראשונה: תאוריית העונש ותאוריית הקונפליקט. לפי תאוריית העונש, התגובה הפיזיולוגית המוגברת לשאלות הנוגעות למידע שהנבדק מבקש להסתיר, נובעת מתחושת פחד המתעוררת אצלו בשל החשש שמא יתגלה דבר השקר ועקב זאת הוא ייענש. לפי תאוריית הקונפליקט, שאלות אלה מעוררות אצל הנבדק קונפליקט פסיכולוגי בין הרצון לומר אמת לבין הרצון לשקר, וקונפליקט זה הוא הגורם לעלייה בתגובתיות הפיזיולוגית. תאוריות אלו אמנם מספקות הסבר מניח את הדעת ליכולת הגילוי של הפוליגרף בחקירות משטרתיות, אך בשנים האחרונות נעשו מחקרי מעבדה שממצאיהם סותרים אותן.

Magyar	Nederlands	አማርኛ	עברית
elfogadható	wordt erkend	ተቀባይነት ያለው	קבילה
kapcsolatban van	betrekking hebben op	ግንኙነት ያላቸው	נוגעות
mérések	indicators	ጠቋሚዎች	מדדים
eredményez	teweegbrengt	ይፈጥራል	מניב
intenziv	verhoogde	የላቁ	מוגברות
leleplezés	ontdekking	ማግኘት/ማጋለጥ	גילוי
ellentmondásos	tegenspreken	ይቃረናሉ	סותרים

In the laboratory studies, the subject is asked to select a playing card and remember its number. He is then asked a series of questions that have a fixed wording: "Is x the number of the card that you selected?" The subject is asked to answer all of the questions in the negative, including the question specifying the number of the card he selected, and in this way to attempt to conceal his choice from the polygraph. The polygraph machine indicates which question registered the strongest physiological responses, thus "guessing" which card was selected. A study examining the threat-of-punishment theory tested two groups of newly recruited policemen. One group was told that the purpose of the testing was to examine their degree of self-control, and should they fail, they would be unable to continue serving in the police force. The other group was told that the purpose of the testing was to examine the effectiveness of the polygraph machine. The results of the study showed that there was no difference between the two groups in terms of the percentage of subjects for whom the selected card was revealed by the machine. In a different study, which examined the conflict theory, one group of subjects was asked to answer all questions in the negative, while the other group of subjects was asked to answer all questions truthfully (in other words, to answer the question that specifies the number of the selected card in the affirmative, and to answer all the rest in the negative). In this study as well, there were no differences in detection rates between the two groups.

The above studies refute the threat-of-punishment theory and the conflict theory, respectively. As a result, some researchers have turned to cognitive explanations. According to the cognitive school, the increase in physiological responsiveness is related to a general phenomenon called the "orientation response" – an automatic physiological response to any stimulus in the environment that is of significance to an individual. This phenomenon provided an evolutionary advantage to animals in situations of danger, where they had to react swiftly; however, the response is triggered by any stimulus that is of significance, even if it does not indicate danger. According to the cognitive explanation, subjects in the laboratory studies displayed a heightened response specifically to the question about the card they had selected because the familiar number was a stimulus of significance to them, unlike the other numbers, which were neutral.

English	Русский	Português	Deutsch	Italiano
conceal	скрывать	esconder	verbergen	nascondere
stimulus	раздражитель	estímulo	Reiz	stimolo

במחקרי המעבדה הנבדק מתבקש לבחור קלף ולזכור את מספרו. לאחר מכן הוא נשאל סדרת שאלות בנוסח קבוע: "האם מספר הקלף שבחרת הוא x?". הנבדק מתבקש לענות בשלילה על כל השאלות, ובכללן השאלה הנוקבת במספר הקלף שבחר, ובכך לנסות להסתיר מהפוליגרף את בחירתו. מכשיר הפוליגרף בודק באיזו שאלה נרשמו התגובות הפיזיולוגיות החזקות ביותר, וכך "מנחש" מה הקלף שנבחר. במחקר אחד, שבדק את תאוריית העונש, נבדקו שתי קבוצות של שוטרים מתחילים. לקבוצה האחת נאמר כי מטרת המבחן היא לבחון את מידת השליטה העצמית שלהם, וכי אם ייכשלו בו, הם לא יוכלו להמשיך לשרת במשטרה. לקבוצה האחרת נאמר כי מטרת המבחן היא לבדוק את יעילותו של מכשיר הפוליגרף. מתוצאות המחקר התברר כי אין הבדל בין שתי הקבוצות מבחינת שיעור הנבדקים שהמכונה גילתה את הקלף שבחרו. במחקר אחר, שבדק את תאוריית הקונפליקט, התבקשו הנבדקים בקבוצה האחת להשיב בשלילה על כל השאלות, ואילו הנבדקים בקבוצה האחרת התבקשו להשיב תשובות אמת על כל השאלות (כלומר לענות בחיוב על השאלה הנוקבת במספר הקלף שבחרו, ובשלילה על כל האחרות). גם במחקר זה לא נמצאו הבדלים בשיעורי הגילוי בין שתי הקבוצות.

המחקרים שתוארו סותרים האחד את תאוריית העונש והאחר את תאוריית הקונפליקט. לפיכך פנו כמה מהחוקרים להסברים הקוגניטיביים. לפי האסכולה הקוגניטיבית, העלייה בתגובתיות הפיזיולוגית קשורה לתופעה כללית הנקראת "תגובת אוריינטציה" - תגובה פיזיולוגית אוטומטית על כל גירוי בסביבה שהוא משמעותי בעבור הפרט. תופעה זו העניקה יתרון אבולוציוני לבעלי חיים במצבי סכנה, שבהם היה עליהם להגיב במהירות, אך התגובה מופיעה על כל גירוי משמעותי, גם אם אינו מסוכן. לפי ההסבר הקוגניטיבי, במחקרי המעבדה הגיבו הנבדקים תגובה מוגברת דווקא לשאלה על הקלף שבחרו, מכיוון שהמספר המוכר היה בעבורם גירוי משמעותי, שלא כמספרים האחרים שהיו ניטרליים.

Magyar	Nederlands	አማርኛ	עברית
eltitkolni	verbergen	መደበቅ	להסתיר
inger	prikkel, prikkeling	የሚያነቃቃ/ቀስቃሽ	גירוי

Questions

22. In lines 8-10, "this difference" is the difference between -

(1) physiological responses during a polygraph test and physiological responses not during a polygraph test
(2) psychological states that are accompanied by heightened physiological responses and psychological states not accompanied by such responses
(3) automatic physiological responses and non-automatic physiological responses
(4) physiological responses when telling a lie and physiological responses when telling the truth

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23. Joe committed a crime. During his interrogation by means of a polygraph test, he claims that he is innocent and denies any connection to the crime. According to the explanation in lines 1-11, what is the test expected to show?

(1) Joe's physiological responses throughout the test will be stronger than the responses of others who are innocent.
(2) Joe will have stronger physiological responses to questions about the crime than to questions that are neutral.
(3) Some of Joe's physiological responses to questions about the crime will be very strong and some will be very weak.
(4) Joe's physiological indicators that are measured throughout the test will correlate with emotional and cognitive indicators that reflect the psychological state associated with telling a lie.

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24. Which is the factor whose effect on physiological responses was tested in the experiment described in lines 32-37?

(1) the difficulty of answering questions in the negative
(2) the need to give identical answers to all of the questions
(3) fear of the question about the number of the selected card
(4) the psychological conflict that exists when telling a lie

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English	**Русский**	**Português**	**Deutsch**	**Italiano**
innocent	невиновен	inocente	unschuldig	innocente
denies	отрицает	nega	leugnet	nega

השאלות

22. "הבדל זה" (שורה 6) הוא ההבדל -

(1) בין התגובות הפיזיולוגיות בזמן בדיקה בפוליגרף לבין התגובות הפיזיולוגיות שלא בזמן בדיקה
(2) בין מצבים פסיכולוגיים המלווים בתגובות פיזיולוגיות מוגברות לבין מצבים פסיכולוגיים שאינם מלווים בתגובות אלו
(3) בין התגובות הפיזיולוגיות האוטומטיות לבין התגובות הפיזיולוגיות שאינן אוטומטיות
(4) בין התגובות הפיזיולוגיות בזמן אמירת שקר לבין התגובות הפיזיולוגיות בזמן אמירת אמת

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23. יוסי ביצע פשע, ובחקירתו באמצעות בדיקת פוליגרף הוא טוען כי הוא חף מפשע ומכחיש כל קשר לפשע. על פי ההסבר שבשורות 1-8, מה צפויה הבדיקה להראות?

(1) התגובות הפיזיולוגיות של יוסי לאורך כל הבדיקה יהיו חזקות יותר מתגובותיהם של אנשים אחרים חפים מפשע
(2) התגובות הפיזיולוגיות של יוסי על השאלות הנוגעות לפשע יהיו חזקות מתגובותיו על השאלות הניטרליות
(3) חלק מהתגובות הפיזיולוגיות של יוסי לשאלות הנוגעות לפשע יהיו חזקות מאוד וחלקן יהיו חלשות מאוד
(4) המדדים הפיזיולוגיים שיילקחו ממנו לאורך כל הבדיקה יתאימו למדדים רגשיים וקוגניטיביים המעידים על מצב פסיכולוגי של אמירת שקר

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24. מה הגורם שהשפעתו על התגובות הפיזיולוגיות נבדקה בניסוי המתואר בשורות 23-26?

(1) הקושי להשיב בשלילה על שאלות
(2) הצורך לענות תשובות זהות על כל השאלות
(3) תחושה של פחד מפני השאלה על מספר הקלף הנבחר
(4) קיומו של קונפליקט פסיכולוגי בזמן אמירת שקר

Magyar	Nederlands	አማርኛ	עברית
ártatlan	onschuldig	የዋህ	חף מפשע
tagadja	ontkent	ይክዳል	מכחיש

25. According to the cognitive explanation found in lines 38-47, which of the following statements is true?

(1) When a person is exposed to a stimulus that is of significance, his physiological response is weaker than when he is exposed to a stimulus of no significance.
(2) The heightening of physiological responses during a polygraph test is due to the fact that subjects are required to respond quickly to all of the questions.
(3) Subjects' physiological responses are heightened during a polygraph test because they feel they are in danger.
(4) The physiological response of subjects taking a polygraph test to the question referring to the number of the card they selected is an orientation response.

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26. Proponents of the cognitive explanation are of the opinion that changes should be made in the way questions are presented in the polygraph test. Instead of asking direct questions, such as "Did you steal the car?" questions that indicate knowledge of the crime that was committed, such as "Was the stolen car red?" should be asked. According to the theory, only the guilty party will exhibit a difference in the physiological responses to hearing the color of the stolen car and the physiological responses to hearing other colors. Why?

(1) because the color of the stolen car is a significant stimulus for the guilty party, whereas for innocent people, all colors are neutral
(2) because the guilty party will be unable to control his physiological responses when hearing the different colors, whereas innocent people will be able to control their responses
(3) because the guilty party will have heightened physiological responses from the very first question, whereas the heightening of physiological responses among innocent people will be more gradual
(4) because for the guilty party, the question will arouse fear of punishment if he is caught, and for innocent people it will not

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25. לפי ההסבר הקוגניטיבי המופיע בשורות 27-33, איזו מהטענות הבאות נכונה?

(1) כשאדם נתקל בגירוי משמעותי, התגובה הפיזיולוגית שלו חלשה מתגובתו כאשר הוא נתקל בגירוי לא משמעותי

(2) העלייה בתגובות הפיזיולוגיות בשעת הבדיקה בפוליגרף מקורה בעובדה שהנבדקים נדרשים להגיב מהר על כל השאלות

(3) בבדיקת הפוליגרף יש עלייה בתגובות הפיזיולוגיות של הנבדקים, מכיוון שהם חשים שהם במצב של סכנה

(4) התגובה הפיזיולוגית של הנבדקים בפוליגרף לשאלה על מספר הקלף שבחרו היא תגובת אוריינטציה

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26. לדעת המחזיקים בהסבר הקוגניטיבי, יש לשנות את שיטת הצגת השאלות בבדיקת הפוליגרף: במקום לשאול שאלות ישירות, כגון "האם גנבת את המכונית?", יש לשאול שאלות המעידות על ידע בנוגע לפשע שבוצע, כגון "האם המכונית שנגנבה הייתה אדומה?". לפי התאוריה, רק אצל האשם יהיה אפשר להבחין בין התגובות הפיזיולוגיות למשמע צבע המכונית שנגנבה לבין התגובות הפיזיולוגיות למשמע הצבעים האחרים. מדוע?

(1) מכיוון שבעבור האשם צבעה של המכונית שנגנבה הוא גירוי משמעותי, ואילו בעבור החפים מפשע כל הצבעים ניטרליים

(2) מכיוון שהאשם לא יוכל לשלוט בתגובות הפיזיולוגיות למשמע הצבעים השונים, ואילו החפים מפשע יוכלו לשלוט בתגובות

(3) מכיוון שאצל האשם תהיה עלייה בתגובות הפיזיולוגיות כבר מהשאלה הראשונה, ואילו אצל החפים מפשע תהיה העלייה הדרגתית

(4) משום שאצל האשם תעורר השאלה פחד מענישה אם ייתפס, ואצל החפים מפשע לא

המשך לעמוד הבא go on to the next page

27. The following laboratory study was conducted: Subjects selected a playing card and memorized the number on it. They were then connected to a polygraph machine and asked a series of questions about the number on the card they had selected. Subjects were divided into two groups. The subjects in one group were asked to answer all questions in the negative, while the subjects in the second group were asked not to answer any of the questions, but merely to listen to them silently. Results showed identical detection rates in both groups.

Which of the following statements is true?

(1) The study results support the explanation provided by the threat-of-punishment theory.
(2) The study results support the explanation provided by the conflict theory.
(3) The study results support the explanation provided by the cognitive school.
(4) The study results contradict all three explanations.

English	Русский	Português	Deutsch	Italiano
memorized	выучили	memorizaram	merkten sich	ripeterono, memorizzarono
rates	процент	taxas	Rate, Grad	tassi

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

27. במעבדה נערך מחקר: נבדקים בחרו קלף ושיננו את מספרו, ואז חוברו לפוליגרף ונשאלו סדרת שאלות על מספר הקלף שבחרו. הנבדקים חולקו לשתי קבוצות: בקבוצה האחת התבקשו הנבדקים לענות בשלילה על כל השאלות, ובקבוצה האחרת התבקשו הנבדקים שלא לענות כלל על השאלות, אלא להקשיב להן בשתיקה. התוצאות הראו ששיעורי הגילוי בשתי הקבוצות היו זהים.

איזו מהטענות הבאות נכונה?

(1) תוצאות המחקר תומכות בהסבר של תאוריית העונש

(2) תוצאות המחקר תומכות בהסבר של תאוריית הקונפליקט

(3) תוצאות המחקר תומכות בהסבר של האסכולה הקוגניטיבית

(4) תוצאות המחקר סותרות את כל שלושת ההסברים

Magyar	Nederlands	አማርኛ	עברית
bemagoltȧk, megjegyeztėk	leerden uit het hoofd (van buiten)	በቃል አጠኑ (ሸመደዱ)	שיננו
szȧzalėk	getallen	መጠን	שיעור

אל תהפוך את הדף עד שתקבל הוראה לכך!

Do not turn the page until you are instructed to do so!

Section 6: Quantitative Reasoning

This section contains 25 questions.
The time allotted is 25 minutes.

This section consists of questions and problems involving quantitative reasoning. Each question is followed by four possible responses. Choose the correct answer and mark its number in the appropriate place on the answer sheet.

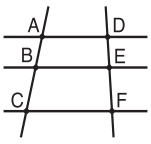
Note: The words appearing against a gray background are translated into several languages at the bottom of the page.

General Comments about the Quantitative Reasoning Section

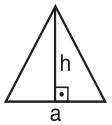
* The figures accompanying some of the questions are provided to help in answering the questions, but are not necessarily drawn to scale. Therefore, do not rely on the figures alone to deduce line length, angle measure, and so forth.
* If a line in a figure appears to be straight, you may assume that it is in fact a straight line.
* When a geometric term (side, radius, area, volume, etc.) appears in a question, it refers to a term whose value is greater than 0, unless stated otherwise.
* When $\sqrt{a}$ $(a > 0)$ appears in a question, it refers to the positive root of a.

Symbols and Formulas

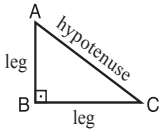
1. **The symbol** $\llcorner$ represents a 90° (right) angle.
   The symbol $\sphericalangle ABC$ represents the angle formed by line segments AB and BC.
   $a \parallel b$ means a is parallel to b.
   $a \perp b$ means a is perpendicular to b.
2. **Zero** is neither a positive nor a negative number.
   Zero is an even number.
   One is not a prime number.
3. **Percentages:** $a\%$ of x is equal to $\frac{a}{100} \cdot x$
4. **Exponents:** For every a that does not equal 0, and for any two integers n and m -
   a. $a^{-n} = \frac{1}{a^n}$ b. $a^{m+n} = a^m \cdot a^n$
   c. $a^{\frac{n}{m}} = \left(\sqrt[m]{a}\right)^n$ $(0 < a, 0 < m)$ d. $a^{n \cdot m} = (a^n)^m$
5. **Contracted Multiplication Formulas:**
   $(a \pm b)^2 = a^2 \pm 2ab + b^2$
   $(a + b)(a - b) = a^2 - b^2$
6. **Distance Problems:** $\frac{\text{distance}}{\text{time}}$ = speed (rate)
7. **Work Problems:** $\frac{\text{amount of work}}{\text{time}}$ = output (rate)
8. **Proportions:** If $AD \parallel BE \parallel CF$ then $\frac{AB}{DE} = \frac{BC}{EF}$ and $\frac{AB}{AC} = \frac{DE}{DF}$



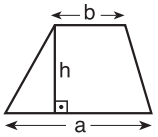
9. **Triangles:**
   a. **The area of a triangle** with base of length a and altitude to the base of length h is $\frac{a \cdot h}{2}$



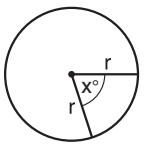
   b. **Pythagorean Theorem:** In any right triangle ABC, as in the figure, the following always holds true: $AC^2 = AB^2 + BC^2$



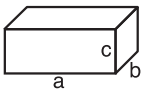
   c. In any right triangle whose angles measure 30°, 60° and 90°, the length of the leg opposite the 30° angle is equal to half the length of the hypotenuse.
10. **The area of a rectangle** of length a and width b is $a \cdot b$
11. **The area of a trapezoid** with one base a, the other base b, and altitude h is $\frac{(a+b) \cdot h}{2}$



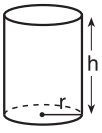
12. **The sum of the internal angles of a polygon** with n sides is $(180n - 360)$ degrees.
    In a regular polygon with n sides,
    each internal angle measures
    $\left(180 - \frac{360}{n}\right) = \left(\frac{180n - 360}{n}\right)$ degrees.
13. **Circle:**
    a. **The area** of a circle with radius r is πr^2 $(\pi = 3.14...)$
    b. **The circumference** of a circle with radius r is $2\pi r$
    c. **The area of a sector of a circle** with a central angle of $x°$ is $\pi r^2 \cdot \frac{x}{360}$



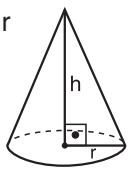
14. **Box (Rectangular Solid), Cube:**
    a. **The volume** of a box of length a, width b and height c is $a \cdot b \cdot c$
    b. **The surface area** of the box is $2ab + 2bc + 2ac$
    c. In a **cube**, $a = b = c$



15. **Cylinder:**
    a. **The lateral surface area** of a cylinder with base radius r and height h is $2\pi r \cdot h$
    b. **The surface area** of the cylinder is $2\pi r^2 + 2\pi r \cdot h = 2\pi r(r + h)$
    c. **The volume** of the cylinder is $\pi r^2 \cdot h$



16. **The volume of a cone** with base radius r and height h is $\frac{\pi r^2 \cdot h}{3}$



פרק 6: חשיבה כמותית

בפרק זה 25 שאלות.
הזמן המוקצב הוא 25 דקות.

בפרק זה מופיעות שאלות ובעיות של חשיבה כמותית. לכל שאלה מוצעות ארבע תשובות. עליך לבחור את התשובה הנכונה ולסמן את מספרה במקום המתאים בגיליון התשובות.

הערות כלליות בנוגע לפרק חשיבה כמותית:

* הסרטוטים המצורפים לחלק מהשאלות נועדו לסייע בפתרונן, אך אין הם מסורטטים בהכרח על פי קנה מידה. אין להסיק מסרטוט בלבד על אורך קטעים, גודל זוויות, וכיוצא בהם.
* אם קו נראה ישר בסרטוט, אפשר להניח שהוא אכן ישר.
* כאשר מופיע בשאלה מונח גאומטרי (צלע, רדיוס, שטח, נפח וכו') כנתון, הכוונה היא למונח שערכו גדול מאפס, אלא אם כן מצוין אחרת.
* כאשר כתוב בשאלה $\sqrt{a}$ $(a>0)$, הכוונה היא לשורש החיובי של a.

סימנים ונוסחאות:

1. הסימן $\boxdot$ פירושו זווית של $90°$ - זווית ישרה.

$\sphericalangle ABC$ פירושו הזווית הכלואה בין הקטעים AB ו-BC.

$a \parallel b$ פירושו a מקביל ל-b.

$a \perp b$ פירושו a מאונך ל-b.

2. אפס אינו מספר חיובי ואינו מספר שלילי.
אפס הוא מספר זוגי.
אחד אינו מספר ראשוני.

3. אחוזים: $a\%$ מ-x הם $\frac{a}{100}\cdot x$

4. חזקות: לכל מספר a שונה מאפס, ולכל n ו-m שלמים -

א. $a^{-n}=\frac{1}{a^n}$ ב. $a^{m+n}=a^m\cdot a^n$

ג. $a^{\frac{n}{m}}=\left(\sqrt[m]{a}\right)^n$ $(0<a\,,\,0<m)$

ד. $a^{n\cdot m}=(a^n)^m$

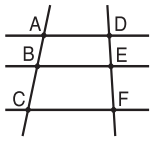
5. נוסחאות כפל מקוצר: $(a\pm b)^2=a^2\pm 2ab+b^2$

$(a+b)(a-b)=a^2-b^2$

6. בעיות דרך: $\text{מהירות}=\frac{\text{דרך}}{\text{זמן}}$

7. בעיות הספק: $\text{הספק}=\frac{\text{כמות עבודה}}{\text{זמן}}$

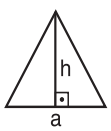
8. פרופורציה: אם: $AD \parallel BE \parallel CF$



אזי: $\frac{AB}{DE}=\frac{BC}{EF}$ וגם $\frac{AB}{AC}=\frac{DE}{DF}$

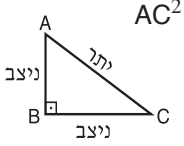
9. משולש:

א. **שטח משולש** שאורך בסיסו a ואורך הגובה לבסיס זה h הוא: $\frac{a\cdot h}{2}$



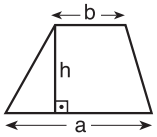
ב. **משפט פיתגורס:**
במשולש ישר זווית ABC כבסרטוט מתקיים החוק הבא: $AC^2=AB^2+BC^2$

ג. במשולש ישר זווית שזוויותיו $30°$, $60°$, $90°$, אורך הניצב שמול הזווית $30°$ שווה לחצי אורך היתר.



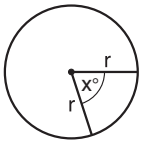
10. שטח מלבן שאורכו a ורוחבו b הוא: $a\cdot b$

11. שטח טרפז שאורך בסיסו האחד a, אורך בסיסו האחר b, וגובהו h הוא: $\frac{(a+b)\cdot h}{2}$



12. סכום הזוויות הפנימיות במצולע
בעל n צלעות הוא: $(180n-360)$ מעלות.
במצולע משוכלל בעל n צלעות **גודל כל זווית פנימית** הוא: $\left(180-\frac{360}{n}\right)=\left(\frac{180n-360}{n}\right)$ מעלות.

13. עיגול, מעגל:

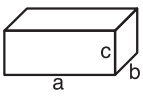


א. **שטח** עיגול שרדיוסו r הוא: πr^2 $(\pi=3.14...)$

ב. **היקף** מעגל שרדיוסו r הוא: $2\pi r$

ג. **שטח גזרת עיגול** בעלת זווית ראש $x°$ הוא: $\pi r^2\cdot\frac{x}{360}$

14. תיבה, קובייה:

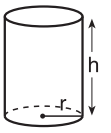


א. **הנפח** של תיבה שאורכה a, רוחבה b וגובהה c הוא: $a\cdot b\cdot c$

ב. **שטח הפנים** של התיבה הוא: $2ab+2bc+2ac$

ג. **בקובייה** מתקיים $a=b=c$

15. גליל:

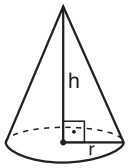


א. **שטח המעטפת** של גליל שרדיוס בסיסו r וגובהו h הוא: $2\pi r\cdot h$

ב. **שטח הפנים** של הגליל הוא: $2\pi r^2+2\pi r\cdot h=2\pi r(r+h)$

ג. **הנפח** של הגליל הוא: $\pi r^2\cdot h$

16. נפח חרוט שרדיוס בסיסו r וגובהו h הוא: $\frac{\pi r^2\cdot h}{3}$



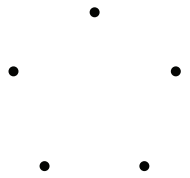
Questions and Problems (Questions 1-6)

1. a is an integer greater than 1.
Which of the following numbers is less than 0 ?

(1) $|-a|$
(2) $(1 - a)^2$
(3) $a - a^2$
(4) $(-2)(1 - a)$

---

2. The accompanying figure shows 5 points that are the vertices of a regular pentagon.
If we connect every point by a straight line to every other point,
how many different lines will we obtain?

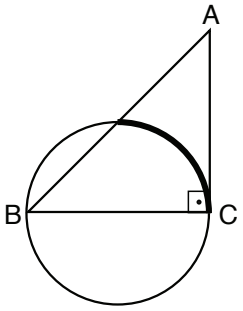


(1) 10
(2) 12
(3) 14
(4) 16

---

3. In the accompanying figure, ABC is a right isosceles triangle.
BC is a diameter of the circle.

$$\frac{\text{length of arc shown in bold}}{\text{circumference of circle}} = ?$$



(1) $\frac{1}{5}$
(2) $\frac{1}{2}$
(3) $\frac{1}{6}$
(4) $\frac{1}{4}$

English	**Русский**	**Português**	**Deutsch**	**Italiano**
integer	целое число	número inteiro	ganza Zahl	numero intero
vertices	вершины	vértices	Ecken	vertici
regular pentagon	правильный пятиугольник	pentágono regular	regelmäßiges Fünfeck	pentagono regolare
right isosceles triangle	прямоугольный равнобедренный треугольник	triângulo retângulo isósceles	rechtwinkliges gleichschenkliges Dreieck	triangolo isoscele retto
diameter	диаметр	diâmetro	Durchmesser	diametro
arc in bold	выделенная дуга	arco em negrito	des hervorgehobenen Kreisbogens	arco in neretto, evidenziata
circumference	длина (окружности)	perímetro	Umfang	circonferenza

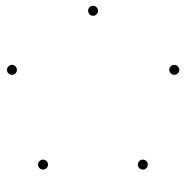
שאלות ובעיות (שאלות 1-6)

1. a הוא מספר שלם גדול מ-1.
איזה מהמספרים הבאים קטן מ-0 ?

(1) $|-a|$
(2) $(1-a)^2$
(3) $a-a^2$
(4) $(-2)(1-a)$

---

2. בסרטוט שלפניך 5 נקודות שהן קדקודים של מחומש משוכלל.
אם נחבר בקו ישר כל נקודה עם כל נקודה אחרת, כמה קווים שונים נקבל?

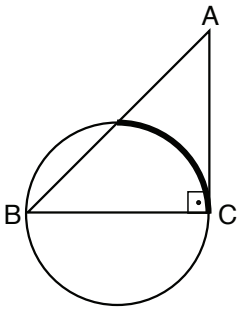


(1) 10
(2) 12
(3) 14
(4) 16

---

3. בסרטוט שלפניך ABC הוא משולש ישר זווית ושווה שוקיים.
BC הוא קוטר במעגל.

$$? = \frac{\text{אורך הקשת המודגשת}}{\text{היקף המעגל}}$$



(1) $\frac{1}{5}$
(2) $\frac{1}{2}$
(3) $\frac{1}{6}$
(4) $\frac{1}{4}$

Magyar	Nederlands	አማረኛ	עברית
egész szám	heel getal	ድፍን ቁጥር	מספר שלם
csúcsok	punten	ነቁጦች (ነጥቦች)	קדקודים
szabályos ötszög	regelmatige vijfhoek	ምጥጥን ጎን አምስት	מחומש משוכלל
egyenlő szárú derékszögű háromszög	rechthoekige en gelijkzijdige driehoek	ባለአኩል አግሮችና ቀጤ ዘዌ ጎን ሦስት	משולש ישר זווית ושווה שוקיים
átmérő	middellijn diameter	ክብን የሚያጋምስ (ዲያሜትር)	קוטר
vastag vonallal rajzolt köriv	vetgedrukte boog	የተጠቆረው ቅስት	קשת מודגשת
kerület (kör)	omtrek	ዙሮሽ (የክብ ዙሪያ)	היקף

4. Ruth has several juice bottles, each containing 1.5 liters of juice. Eric has the same number of juice bottles, each containing $\frac{1}{3}$ of a liter of juice.

$$\frac{\text{amount of juice Ruth has}}{\text{amount of juice Eric has}} = ?$$

(1) 6

(2) $5\frac{1}{2}$

(3) $4\frac{1}{2}$

(4) 4

---

5. 7 robbers found a treasure of 40 gold coins. The first robber divided the coins among the robbers as follows: He gave a coin to himself, a coin to the second robber, a coin to the third robber, and so on. After giving a coin to the last robber, he repeated the procedure, until no coins were left. How many of the robbers received fewer coins than the first robber?

(1) 1
(2) 2
(3) 3
(4) 0

---

6. $$\frac{\frac{1}{3}+\frac{1}{4}}{\frac{2}{3}+\frac{2}{4}} = ?$$

(1) $\frac{1}{2}$

(2) 2

(3) $\frac{1}{12}$

(4) $\frac{1}{6}$

English	**Русский**	**Português**	**Deutsch**	**Italiano**
amount	количество	quantidade	Menge	quantità

4. לרותי מספר בקבוקי מיץ שבכל אחד מהם 1.5 ליטרים מיץ. לאריק אותו מספר של בקבוקי מיץ שבכל אחד מהם $\frac{1}{3}$ ליטר מיץ.

$$? = \frac{\text{כמות המיץ שיש לרותי}}{\text{כמות המיץ שיש לאריק}}$$

(1) 6

(2) $5\frac{1}{2}$

(3) $4\frac{1}{2}$

(4) 4

---

5. 7 שודדים מצאו אוצר של 40 מטבעות זהב. השודד הראשון חילק את המטבעות בין השודדים באופן הבא: הוא השאיר מטבע אצלו, נתן מטבע לשודד השני, מטבע לשודד השלישי וכן הלאה. לאחר שנתן מטבע לשודד האחרון הוא חזר על התהליך, עד שנגמרו המטבעות. כמה שודדים קיבלו פחות מטבעות מהשודד הראשון?

(1) 1

(2) 2

(3) 3

(4) 0

---

6. $$? = \frac{\frac{1}{3}+\frac{1}{4}}{\frac{2}{3}+\frac{2}{4}}$$

(1) $\frac{1}{2}$

(2) 2

(3) $\frac{1}{12}$

(4) $\frac{1}{6}$

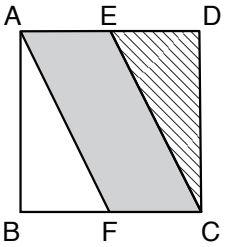
Magyar	Nederlands	አማርኛ	עברית
mennyiség	hoeveelheid	መጠን	כמות

Quantitative Comparisons (Questions 7-12)

Questions 7-12 consist of pairs of quantities. In each question, one quantity appears in column A and a second quantity appears in column B. The third column sometimes provides additional information about the quantities in columns A and B. **This information may be essential for answering the question.** Compare the two quantities, using the additional information (if provided) to determine which one of the following is true:

(1) the quantity in column A is greater
(2) the quantity in column B is greater
(3) the two quantities are equal
(4) there is not enough information to determine the relationship between the two quantities

For each question, mark the number of the answer you have chosen in the appropriate place on the answer sheet.

	Column A	Column B	Additional Information
7.	The shaded area	Twice the striped area	 ABCD is a square. E and F are the midpoints of sides AD and BC, respectively.
8.	The number of numbers from 1 to 1,200 that are evenly divisible by both 2 and 3	The number of numbers from 1 to 1,200 that are evenly divisible by both 3 and 4	
9.	B + C	A + B	A < B < C

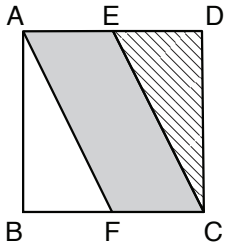
English	Русский	Português	Deutsch	Italiano
shaded area	закрашенная фигура	área sombreada	graue Fläche	area scura
striped area	заштрихованная фигура	área tracejada	gestreifte Fläche	area tratteggiata
square	квадрат	quadrado	Quadrat	quadrato
midpoints of sides	середины сторон	meios das arestas	Mittelpunkte der Seiten	punti medi dei lati
evenly divisible	делятся без остатка	divisíveis (sem deixar resto)	restlos (glatt) teilbar	divisibili equamente (senza resto)

השוואה כמותית (שאלות 7-12)

השאלות 7-12 מורכבות מזוגות של ביטויים. בכל שאלה, ביטוי אחד מופיע בטור א, וביטוי שני בטור ב.
בטור שלישי מופיע לעתים מידע נוסף הנוגע לזוג הביטויים שבטורים א ו-ב. **המידע הנוסף עשוי להיות חיוני לפתרון השאלה**. עליך להשוות בין שני הביטויים, אגב הסתייעות במידע הנוסף (אם הוא קיים), ולקבוע אם:

(1) הביטוי שבטור א גדול יותר
(2) הביטוי שבטור ב גדול יותר
(3) שני הביטויים שווים זה לזה
(4) המידע הנתון אינו מספיק כדי לקבוע איזה מהנ"ל הוא יחס הגדלים בין הביטויים

לאחר שבחרת באפשרות שנראית לך נכונה, סמן את מספרה במקום המתאים בגיליון התשובות.

	טור א	טור ב	מידע נוסף
7.	השטח הכהה	פעמיים השטח המקווקו	 ABCD הוא ריבוע. E ו-F הם אמצעי הצלעות AD ו-BC בהתאמה.
8.	מספר המספרים בין 1 ל-1,200 שמתחלקים ללא שארית גם ב-2 וגם ב-3	מספר המספרים בין 1 ל-1,200 שמתחלקים ללא שארית גם ב-3 וגם ב-4	
9.	B + C	A + B	A < B < C

Magyar	Nederlands	አማርኛ	עברית
sötét terület	grijze (donkere) vlak	የተጠቆረው ቦታ	שטח כהה
vonalazott terület	gestreepte vlak	ሸንጉርጉሩ ቦታ	שטח מקווקו
négyzet	vierkant	ባለ4 አኩል ጎን	ריבוע
oldalak felezőpontja	middelpunten van de zijden	የጎኖቹ መሃል ነጥቦች	אמצעי הצלעות
maradék nélkül osztható	deelbaar zonder rest (precies)	ያለቀሪ የሚካፈሉ	מתחלקים ללא שארית

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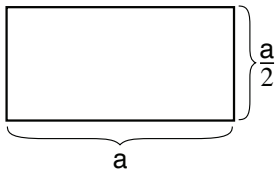
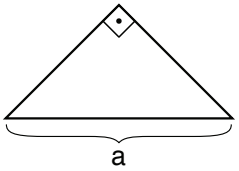
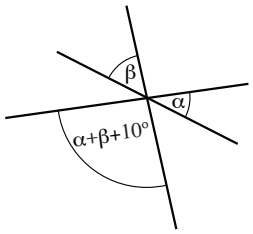
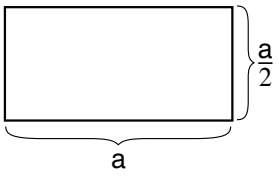
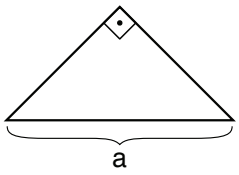
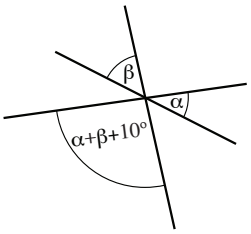
(1) the quantity in column A is greater
(2) the quantity in column B is greater
(3) the two quantities are equal
(4) there is not enough information to determine the relationship between the two quantities

	Column A	Column B	Additional Information
10.	 The perimeter of the rectangle	 The perimeter of the triangle	The triangle in Column B is an isosceles triangle.
11.	$\alpha + \beta$	90º	
12.	y	x	$0 < x < x \cdot y$

English	**Русский**	**Português**	**Deutsch**	**Italiano**
perimeter	периметр	perímetro	Umfang	perimetro
rectangle	прямоугольник	retângulo	Rechteck	rettangolo

(1) הביטוי שבטור א גדול יותר
(2) הביטוי שבטור ב גדול יותר
(3) שני הביטויים שווים זה לזה
(4) המידע הנתון אינו מספיק כדי לקבוע איזה מהנ"ל הוא יחס הגדלים בין הביטויים

	טור א	טור ב	מידע נוסף
.10	 היקף המלבן	 היקף המשולש	המשולש בטור ב' הוא שווה שוקיים.
.11	$\alpha + \beta$	$90°$	
.12	y	x	$0 < x < x \cdot y$

Magyar	Nederlands	አማርኛ	עברית
kerület	omtrek	ፔሪሜትር	היקף
tėglalap	rechthoek	ቀጤ ጎን አራት	מלבן

Table Comprehension (Questions 13-16)

The table below is followed by four questions. Study the table, then answer the question.

The table below depicts the funding of 5 projects by several government ministries. Each ministry spends a certain percentage of its budget on the funding of various projects. Each project is funded by one or more ministries.
For example, Project A is funded by the Ministry of Defense, which spends 2% of its budget on funding the project, and by the Ministry of Finance, which spends 4% of its budget on funding the project.

	Project				
	A	B	C	D	E
Ministy of Defense	2%		4%		
Ministy of Health		1%		10%	1%
Ministy of Finance	4%	1%	5%		5%
Ministy of Education		12%			2%
Ministy of Industry			3%		1%

Note: In answering each question, disregard the information appearing in the other questions.

Questions

13. The budget of the Ministry of Defense is 1,000 zuzim. It is known that the Ministry of Defense invested 10 zuzim more in Project A than did the Ministry of Finance.
What is the budget of the Ministry of Finance (in zuzim)?

(1) 150
(2) 200
(3) 250
(4) 500

English	**Русский**	**Português**	**Deutsch**	**Italiano**
funding	финансирование	financiamento	Finanzierung	il finanziamento
budget	бюджет	orçamento	Etat	bilancio
invested	вложил	investiu	investiert hat	ha investito

הסקה מטבלה (שאלות 13-16)

עיין היטב בטבלה שלפניך, וענה על ארבע השאלות שאחריה.

הטבלה שלפניך מתארת את המימון של 5 פרויקטים על ידי משרדי ממשלה שונים. כל משרד מקדיש אחוז מסוים מתקציבו למימון פרויקטים שונים. כל פרויקט ממומן על ידי משרד אחד או יותר.

לדוגמה, פרויקט א' ממומן על ידי משרד הביטחון, המקדיש 2% מתקציבו למימונו, ועל ידי משרד האוצר, המקדיש 4% מתקציבו למימונו.

	פרויקט				
	א	ב	ג	ד	ה
משרד הביטחון	2%		4%		
משרד הבריאות		1%		10%	1%
משרד האוצר	4%	1%	5%		5%
משרד החינוך		12%			2%
משרד התעשייה			3%		1%

<u>שים לב</u>: בתשובתך לכל שאלה התעלם מנתונים המופיעים בשאלות האחרות.

השאלות

13. התקציב של משרד הביטחון הוא 1,000 זוזים. ידוע כי משרד הביטחון השקיע בפרויקט **א'** 10 זוזים יותר ממשרד האוצר.
מה התקציב של משרד האוצר (בזוזים)?

(1) 150
(2) 200
(3) 250
(4) 500

Magyar	Nederlands	አማርኛ	עברית
finanszírozás	financiering	ፋይናንስ ማድረግ	מימון
költségvetés	budget	በጀት	תקציב
befektetett	heeft geïnvesteerd	ገንዘብን ሥራ ላይ አዋለ	השקיע

go on to the next page המשך לעמוד הבא

14. The Ministry of Health spent 90 zuzim more on funding Project D than on funding Project B.

What is the budget of the Ministry of Health (in zuzim)?

(1) 900
(2) 1,000
(3) 1,100
(4) 1,200

---

15. The budget of the Ministry of Health is x zuzim ($0 < x$), that of the Ministry of Finance is $2x$ zuzim, and that of the Ministry of Education is $3x$ zuzim. Project B is funded solely by these three ministries.

How many zuzim did Project B cost?

(1) $0.06x$
(2) $0.1x$
(3) $0.24x$
(4) $0.39x$

---

16. It is known that each ministry that invested in Project C invested the same amount of money in the project.

$$\frac{\text{budget of the Ministry of Finance}}{\text{budget of the Ministry of Defense}} = ?$$

(1) $\frac{2}{3}$

(2) $\frac{5}{2}$

(3) $\frac{4}{5}$

(4) It is impossible to determine from the information given.

---

14. משרד הבריאות הקדיש למימון פרויקט **ד'** 90 זוזים יותר משהקדיש לפרויקט **ב'**.
מה תקציבו של משרד הבריאות (בזוזים)?

(1) 900
(2) 1,000
(3) 1,100
(4) 1,200

---

15. התקציב של משרד הבריאות הוא x זוזים ($x > 0$), של משרד האוצר $2x$ זוזים ושל משרד החינוך $3x$ זוזים.
פרויקט **ב'** ממומן רק על ידי שלושת המשרדים האלה.
כמה זוזים עלה פרויקט **ב'**?

(1) $0.06x$
(2) $0.1x$
(3) $0.24x$
(4) $0.39x$

---

16. ידוע שכל משרד שהשקיע בפרויקט **ג'** השקיע אותו סכום כסף.

$$? = \frac{\text{תקציב משרד האוצר}}{\text{תקציב משרד הביטחון}}$$

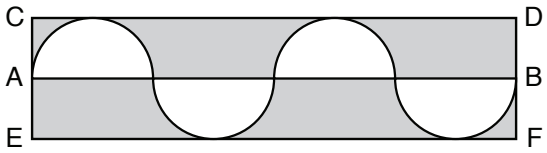
(1) $\frac{2}{3}$
(2) $\frac{5}{2}$
(3) $\frac{4}{5}$
(4) אי-אפשר לדעת על פי הנתונים

המשך לעמוד הבא go on to the next page

Questions and Problems (Questions 17-25)

17. 4 semicircles with a radius of 2 cm lie on line AB. Lines CD and EF are tangent to the semicircles, such that CEFD is a rectangle (see figure).

The shaded area = ?



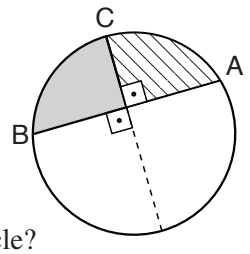
(1) $4(2 - \pi)$ cm^2
(2) $8(8 - \pi)$ cm^2
(3) $16(2 - \pi)$ cm^2
(4) $8(4 - \pi)$ cm^2

---

18. In the accompanying figure, AB is a chord of the circle.

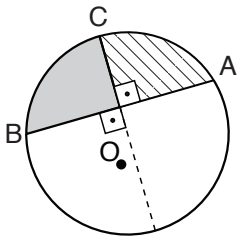
The area of the striped region equals the area of the shaded region.

The area of the white region is greater than $\frac{1}{2}$ the area of the circle.

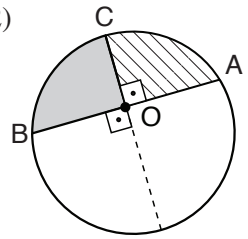


Which of the following figures shows the location of center O of the circle?

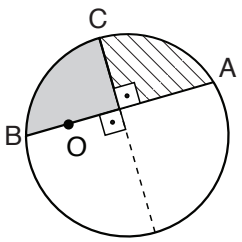
(1)



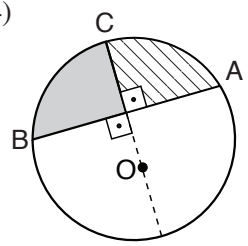
(2)



(3)



(4)

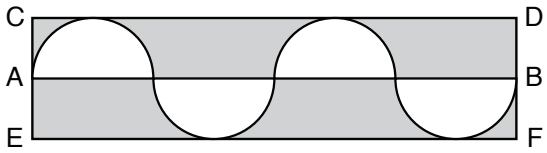


English	Русский	Português	Deutsch	Italiano
semicircles	полукруги	semicírculos	Halbkreise	semicerchi
radius	радиус	raio	Halbmesser	raggio
tangent	касается	tangentes	berühren	sono tangenti
area, region	площадь	área	Fläche	zona, area
chord	хорда	corda	Sehne	corda

שאלות ובעיות (שאלות 17-25)

17. 4 חצאי מעגלים שרדיוסם 2 ס"מ מונחים על ישר AB. הישרים CD ו-EF משיקים לחצאי המעגלים כך ש-CEFD מלבן (ראה סרטוט).

? = השטח הכהה



(1) $4(2-\pi)$ סמ"ר

(2) $8(8-\pi)$ סמ"ר

(3) $16(2-\pi)$ סמ"ר

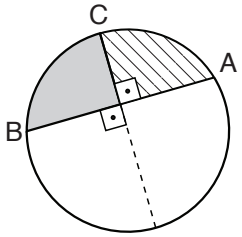
(4) $8(4-\pi)$ סמ"ר

---

18. בסרטוט שלפניך נתון: AB מיתר במעגל.

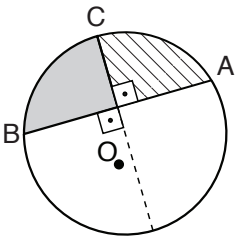
גודל השטח המקווקו שווה לגודל השטח הכהה.

גודל השטח הלבן גדול מ-$\frac{1}{2}$ שטח העיגול.

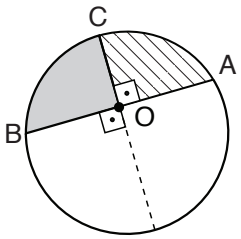


איזה מהסרטוטים הבאים מתאר את מיקומו של מרכז המעגל O?

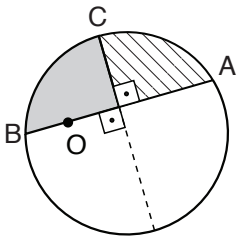
(1)



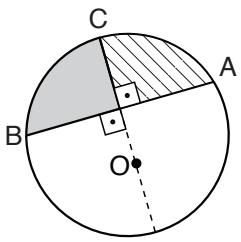
(2)



(3)



(4)



Magyar	Nederlands	አማረኛ	עברית
fél körök	halve cirkels	ገማሲስ ክቦች	חצאי מעגלים
rádiusz, sugár	straal, radius	ሬዲየስ	רדיוס
érintkezik	raken	ታካኪ (የሚነካካ)	משיקים
terület	vlakken	ቦታ (ክልል)	שטח
húr	lijn AB - (koord)	አውታር	מיתר

19. A and B are different positive integers between 1 and 9.
It is known that A, B and (A + B) are prime numbers. It is also known that the two-digit number AB is a prime number.

$A \cdot B = ?$

(1) 6
(2) 10
(3) 15
(4) 25

---

20. Eli is preparing a salad using fresh fruit and canned fruit. The fresh fruit in the salad weighs twice as much as the canned fruit in the salad.
Apples make up $\frac{5}{12}$ of the weight of the fresh fruit. By contrast, apples make up $\frac{1}{4}$ of the weight of the canned fruit.

What proportion of the total weight of the fruit salad is made up of apples?

(1) $\frac{1}{3}$
(2) $\frac{13}{36}$
(3) $\frac{5}{8}$
(4) $\frac{10}{12}$

---

21. Given: $a^5 = 15{,}235$

$(a^4 - a^3 + a^2 - a + 1)(a + 1) = ?$

(1) 15,236
(2) 15,235
(3) 15,234
(4) It is impossible to determine from the information given.

English	Русский	Português	Deutsch	Italiano
prime numbers	простые числа	números primos	Primzahlen	numeri primi
two-digit number	двузначное число	número de dois dígitos	zweistellige Zahl	numero a due cifre
canned	консервированные	em conserva	Konserven	inscatolato

19. A ו-B הם מספרים חיוביים שלמים ושונים זה מזה בין 1 ל-9.
ידוע כי A, B ו-(A + B) הם מספרים ראשוניים. כמו כן ידוע כי המספר הדו-ספרתי AB הוא ראשוני.

$A \cdot B = ?$

(1) 6
(2) 10
(3) 15
(4) 25

---

20. אלי מכין סלט מפירות טריים ומפירות משומרים. משקל הפירות הטריים בסלט גדול פי 2 ממשקל הפירות המשומרים בסלט.
$\frac{5}{12}$ ממשקל הפירות הטריים הם תפוחי עץ. לעומת זאת, $\frac{1}{4}$ ממשקל הפירות המשומרים הוא תפוחי עץ.

איזה חלק ממשקל סלט הפירות כולו הוא משקל תפוחי העץ?

(1) $\frac{1}{3}$
(2) $\frac{13}{36}$
(3) $\frac{5}{8}$
(4) $\frac{10}{12}$

---

21. נתון: $a^5 = 15{,}235$

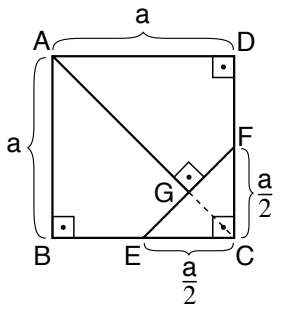
$(a^4 - a^3 + a^2 - a + 1)(a + 1) = ?$

(1) 15,236
(2) 15,235
(3) 15,234
(4) אי-אפשר לדעת על פי הנתונים

Magyar	Nederlands	አማርኛ	עברית
törzsszámok	priemgetal	ብቸኜ ቁጥሮች	מספרים ראשוניים
kétjegyű szám	tweeledig getal	ባለ2 ዲጂት ቁጥር	מספר דו-ספרתי
konzervált	conserven	በቆርቆሮ የታሸገ	משומרים

22. The accompanying figure shows square ABCD with sides of length a.
E and F are the midpoints of sides BC and CD respectively. AG ⊥ EF.

AG = ?



(1) $a\sqrt{2} - \frac{a}{2\sqrt{2}}$

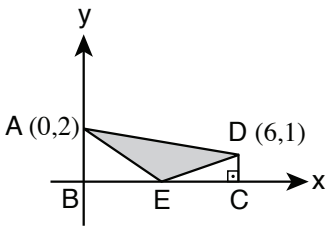
(2) $a\sqrt{2} - \frac{a}{\sqrt{3}}$

(3) $a + a\sqrt{3}$

(4) $a + a\sqrt{2}$

---

23. The accompanying figure shows trapezoid ABCD. E is the midpoint of side BC.
What is the area of the shaded triangle?



(1) 6

(2) $5\frac{1}{2}$

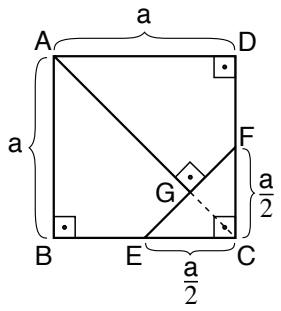
(3) $3\sqrt{5}$

(4) $4\frac{1}{2}$

English	Русский	Português	Deutsch	Italiano
trapezoid	трапеция	trapezóide	Trapezoîd	trapezoide

22. בסרטוט שלפניך ABCD הוא ריבוע שאורך צלעו a.
E ו-F הן אמצעי הצלעות BC ו-CD בהתאמה. $AG \perp EF$.

$AG = ?$



(1) $a\sqrt{2} - \frac{a}{2\sqrt{2}}$

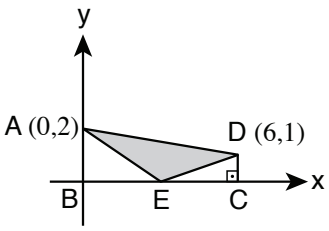
(2) $a\sqrt{2} - \frac{a}{\sqrt{3}}$

(3) $a + a\sqrt{3}$

(4) $a + a\sqrt{2}$

---

23. בסרטוט שלפניך ABCD הוא טרפז. הנקודה E היא אמצע הצלע BC.
מה שטח המשולש הכהה?



(1) 6

(2) $5\frac{1}{2}$

(3) $3\sqrt{5}$

(4) $4\frac{1}{2}$

Magyar	Nederlands	አማረኛ	עברית
trapéz	trapeze	ትራፔዝ	טרפז

24. If Ron gives Mary 3 stamps, she will have twice as many stamps as he will. It is known that the two of them now have the same number of stamps. How many stamps does Mary have now?

(1) 9
(2) 6
(3) 3
(4) It is impossible to know from the information given.

---

25. For every positive integer x, the operation $ is defined as follows:
$(x) = (the sum of the digits of x)

For example: $(59) = 5 + 9 = 14
a and b are two-digit positive integers.

$(100 · a + b) = ?

(1) $(a) + $(b)
(2) 100 · $(a + b)
(3) $(a) + $(b) + 1
(4) 100 · $(a) + $(b)

English	**Русский**	**Português**	**Deutsch**	**Italiano**
sum	сумма	soma	Summe	somma
digits	цифры	algarismos	Ziffern	cifre, numeri

24. אם רון ייתן למירי 3 בולים, יהיה מספר הבולים שלה גדול פי 2 ממספר הבולים שיהיו לו. אם ידוע שכעת יש לשניהם אותו מספר של בולים, כמה בולים יש למירי כעת?

(1) 9
(2) 6
(3) 3
(4) אי-אפשר לדעת על פי הנתונים

---

25. לכל מספר שלם וחיובי x הוגדרה הפעולה $ כך:
$(x) = (סכום הספרות של x)$

לדוגמה: $(59) = 5 + 9 = 14$
a ו-b הם מספרים שלמים, חיוביים ודו-ספרתיים.

$(100 \cdot a + b) = ?$

(1) $(a) + $(b)
(2) $100 \cdot $(a + b)$
(3) $(a) + $(b) + 1$
(4) $100 \cdot $(a) + (b)

Magyar	Nederlands	አማረኛ	עברית
összeg	som	ድምር	סכום
számjegyek	cijfers	አኀዞች (ቁጥሮች)	ספרות

עמוד ריק

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Practice Test

Answer Sheet

מרכז ארצי לבחינות ולהערכה (ע"ר)
NATIONAL INSTITUTE FOR TESTING & EVALUATION
المركز القطري للامتحانات والتقييم
מיסודו של האוניברסיטאות בישראל

BOOKLET No. D מס' חוברת

DATE תאריך

LANGUAGE שפה

NAME A שם משפחה ופרטי

I.D. No. B מס' זיהוי

SECTION 1 פרק

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
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④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④

SECTION 2 פרק

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②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
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SECTION 3 פרק

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①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
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SECTION 4 פרק

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SECTION 5 פרק

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SECTION 6 פרק

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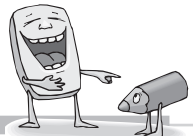
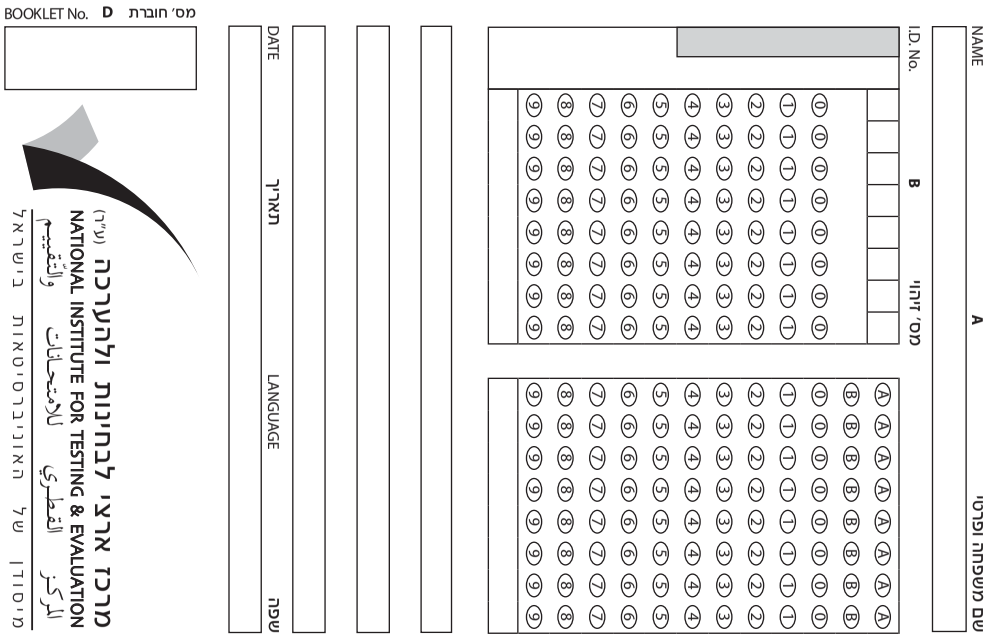
④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④



Practice Test

Answer Key



SECTION 1 פרק

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SECTION 2 פרק

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SECTION 3 פרק

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4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

SECTION 4 פרק

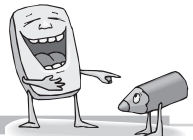
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	4	1	1	1	1	4	4	1	1	1	1	1
2	4	2	2	4	2	4	2	4	2	2	2	2	4	2	2	2	4	2	2	4	2	2	2	2	4	2	2	2	2
4	3	3	4	3	4	3	4	3	3	4	3	4	3	3	4	3	3	4	3	3	3	4	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

SECTION 5 פרק

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	1	1	1	1	1	1	4	4	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1
4	4	2	2	2	4	2	4	2	2	4	2	2	2	2	2	2	2	2	2	4	2	4	2	2	2	2	2	2	2
3	3	4	4	3	3	3	3	3	3	3	4	3	4	4	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

SECTION 6 פרק

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	4	1	1	1	4	1	4	4	4	1	1	1	1	1	1	1	1	4	1	4	4	1	4	4	1	1	1	1	1
2	2	2	2	4	2	2	2	2	2	4	2	2	4	2	2	4	2	2	4	2	2	2	2	2	2	2	2	2	2
4	3	3	4	3	3	4	3	3	3	3	3	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4



CALCULATING ESTIMATES OF YOUR SCORES ON THE PSYCHOMETRIC PRACTICE TEST 5E

Below is an explanation and an example of how to calculate estimates of your scores on the Practice Test.

You can calculate estimates of your scores in each part of the test – verbal, quantitative and English – as well as an estimate of your total test score, which is based on your scores in the above three areas.

CALCULATING YOUR RAW SCORES

Each correct answer is worth one point. To calculate your raw score, add up the total number of points obtained in each of the three parts of the test (there are two sections for each of the verbal, quantitative and English parts). At the end of this stage, three raw scores will be obtained:

a raw score in verbal reasoning (from 0 to 54)
a raw score in quantitative reasoning (from 0 to 50)
a raw score in English (from 0 to 54)

CALCULATING YOUR STANDARDIZED SCORES

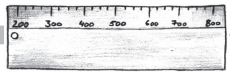
Each raw score is converted to a standardized score on a uniform scale that is not affected by a particular test version, language or date. You can find your standardized score by referring to the accompanying table. At the end of this stage, three estimates will be obtained (from 50 to 150):

- **a verbal reasoning score (V)**
- **a quantitative reasoning score (Q)**
- **an English score (E)**

Table for Converting Raw Scores to Standardized Scores

Raw Score	Standardized Score		
	Verbal	Quantitative	English
0	50	50	50
1	51	52	52
2	52	54	54
3	53	56	56
4	54	58	58
5	55	60	60
6	56	62	62
7	57	64	64
8	58	67	65
9	59	69	67
10	60	71	69
11	62	73	71
12	64	75	73
13	67	77	74
14	69	79	76
15	71	81	78
16	73	83	80
17	75	85	82
18	76	87	83
19	78	89	85
20	80	91	87
21	82	93	89
22	84	95	91
23	87	97	92
24	89	99	94
25	91	101	96
26	93	103	98
27	94	105	100
28	96	107	101
29	97	109	103
30	99	111	105

Raw Score	Standardized Score		
	Verbal	Quantitative	English
31	101	113	107
32	103	115	109
33	105	117	110
34	107	119	112
35	109	121	114
36	111	123	116
37	113	125	118
38	115	127	120
39	117	129	122
40	119	131	124
41	121	133	126
42	123	134	128
43	126	136	129
44	128	138	131
45	130	140	133
46	132	142	135
47	134	144	137
48	136	146	138
49	138	148	140
50	140	150	142
51	142	–	144
52	145	–	146
53	147	–	148
54	150	–	150



CALCULATING AN ESTIMATE OF YOUR TOTAL PSYCHOMETRIC TEST SCORE

In order to estimate your total psychometric score, you must first calculate your weighted score. In the total psychometric score, the verbal and quantitative scores receive twice the weight of the English score. Thus, the weighted score is calculated as $\frac{2V + 2Q + E}{5}$

In order to calculate an estimate of your total psychometric score, refer to the following table which converts the weighted score to the total psychometric score. The table consists of ranges of scores.

Table for Converting Weighted Score to Total Psychometric Test Score

Weighted Score	Estimate of Total Psychometric Score	Weighted Score	Estimate of Total Psychometric Score
50	200	101-105	504-531
51-55	221-248	106-110	532-559
56-60	249-276	111-115	560-587
61-65	277-304	116-120	588-616
66-70	305-333	121 -125	617-644
71-75	334-361	126-130	645-672
76-80	362-389	131-135	673-701
81-85	390-418	136-140	702-729
86-90	419-446	141-145	730-761
91-95	447-474	146-149	762-795
96-100	475-503	150	800

EXAMPLE OF HOW TO CALCULATE AN ESTIMATE OF YOUR SCORE

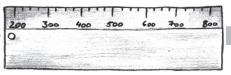
Let us assume that your raw scores in each of the areas are as follows:
38 correct answers in verbal reasoning (total of the two sections);
30 correct answers in quantitative reasoning (total of the two sections);
29 correct answers in English (total of the two sections).

Based on the table on the previous page:

The estimate of your score in verbal reasoning is V = 115
The estimate of your score in quantitative reasoning is Q = 111
The estimate of your score in English is E = 103

Your weighted score is: $\frac{(2 \cdot 115) + (2 \cdot 111) + 103}{5} = 111$

This weighted score can be located in the above table in the 111-115 range, and the corresponding Psychometric Test score is in the 560-587 range.



CONVERTING YOUR SCORE INTO PERCENTAGES

The table for converting ranges of scores into percentages, which appears below, helps you understand the meaning of the estimate you have obtained. The table is divided into 17 categories, each containing a range of scores. The percentage of examinees whose score is below, within and above the range is given for each range. For example, if your total score is 518, it will be located in the 500-524 range. Approximately 36% of examinees scored below this range, approximately 9% scored within this range, and approximately 55% received a score that was above this range.

The division into categories is for illustration purposes only, and does not reflect the admissions policy of any institution.

The table for converting scores into percentages is based on the entire population of Psychometric Test examinees in recent years.

Table for Converting Ranges of Scores into Percentages

Score Range	Percentage of Examinees whose Score is		
	Below the Range	Within the Range	Above the Range
200 - 349	0	3	97
350 - 374	3	3	94
375 - 399	6	4	90
400 - 424	10	5	85
425 - 449	15	6	79
450 - 474	21	7	72
475 - 499	28	8	64
500 - 524	36	9	55
525 - 549	45	8	47
550 - 574	53	9	38
575 - 599	62	8	30
600 - 624	70	8	22
625 - 649	78	7	15
650 - 674	85	6	9
675 - 699	91	4	5
700 - 724	95	3	2
725 - 800	98	2	0

Note: The estimates of your scores on the Practice Test are intended to help you arrive at an approximate evaluation of your level of performance. These estimates do not obligate the National Institute for Testing and Evaluation, and are not in any way a substitute for the scores obtained on an actual Psychometric Test.