МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ПЕДАГОГІЧНИЙ УНІВЕРСИТЕТ
імені Г.С. СКОВОРОДИ

О.О. ГУЛІЧ

Методичні рекомендації

«АНГЛІЙСЬКА МОВА ДЛЯ ФІЗИКО-МАТЕМАТИЧНОГО НАПРЯМУ»

для здобувачів вищої освіти першого (бакалаврського) рівня
фізико-математичного напряму за спеціальностями:
014.04 Середня освіта (Математика)
014.08 Середня освіта (Фізика)
014.09 Середня освіта (Інформатика)

ХАРКІВ – 2020

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У представленому виданні надано матеріали для забезпечення формування англомовної професійної комунікативної компетенції здобувачів вищої освіти першого (бакалаврського) рівня різних років навчання фізико-математичного напряму і досягнення ними володіння англійської мови рівня В2 (відповідно до Загальноєвропейських рекомендацій з мовної освіти). Структурно видання складається з трьох розділів, що містять різнорівневі тексти (тематика яких пов'язана з математикою, фізикою та інформатикою), тестові завдання та вправи для розвитку лексичної компетенції навчального та контролюючого характеру .

Рекомендовано для здобувачів вищої освіти першого (бакалаврського) рівня різних років навчання за спеціальностями: 014.04 Середня освіта (Математика), 014.08 Середня освіта (Фізика), 014.09 Середня освіта (Інформатика) при підготовці до Єдиного вступного іспиту з іноземних мов для вступу на навчання для здобуття ступеня «магістра».

Видано за рахунок автора

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ЗМІСТ / CONTENT

Introduction / Вступ 5
Chapter I. Texts In Mathematics 6
Activity 1. 6
Activity 2. (Gapped Text) 7
Activity 3. 8
Activity 4. 10
Activity 5. (Multiple Choice) 11
Activity 6. 12
Activity 7. 14
Activity 8. (Multiple Matching) 16
Activity 9. Use Of English. Gap Fill (Grammar) 17
Activity 10. Use Of English. Gap Fill (Grammar) 18
Activity 11. Use Of English. Gap Fill (Grammar) 20
Activity 12. (Gapped Text) 21
Chapter II. Texts In Physics 26
Activity 1. (Gapped Text) 26
Activity 2. Gap Fill (Grammar) 27
Activity 3. (Multiple Matching) 29
Activity 4. Gap Fill (Grammar) 30
Activity 5. (Gapped Text) 32
Activity 6. Gap Fill (Grammar) 32
Activity 7. (Gapped Text) 34
Activity 8. Gap Fill (Grammar) 35
Activity 9. (Multiple Choice) 36
Activity 10. Gap Fill (Grammar) 37
Vocabulary Practice 39
Chapter III. Texts In Information Technology 41
Activity 1. Gap Fill (Grammar) 41
Activity 2. (Gapped Text) 42
Activity 3. (Multiple Matching) 43
Activity 4. (Gapped Text) 45
Activity 5. 46
Activity 6. Gap Fill (Grammar) 47
Activity 7. (Gapped Text) 48
Activity 8. Gap Fill (Grammar) 49
Activity 9. (Multiple Matching) 51
Activity 10. Use Of English. Gap Fill (Grammar) 52
Activity 11. (Gapped Text) 53
Activity 12. 54
Activity 13. 55
Activity 14. 55
Activity 15. 56
Activity 16. 58

Activity 17. 59
Activity 18. 60
Activity 19. 61
Список рекомендованої літератури для самостійної роботи 63
Appendixes 64
Irregular Verbs 64
Vocabulary For Information Technology Professionals 67
Appendix Signs Used In Mathematics 71
Short Mathematics Dictionary 71
English-Ukrainian Vocabulary Of Mathematical Terms 74
Keys To Activities 84

INTRODUCTION / ВСТУП

Метою методичних рекомендацій є забезпечення формування іншомовної професійної комунікативної компетенції студентів фізико-математичного факультету і досягнення ними рівня В2. Створення методичних рекомендацій було обумовлено вимогами часу: згідно з кваліфікаційними стандартами досягнення рівня В2 з іноземної мови є обов'язковим для здобувачів першого освітнього (бакалаврського) рівня вищої освіти.

Використання методичних рекомендацій передбачає розвиток комунікативної компетенції з англійської мови у студентів фізико-математичного напряму на основі предметних знань та попереднього досвіду у межах ситуативного контексту, пов'язаного з навчанням і спеціалізацією.

Тестові завдання – є не лише об'єктивним засобом вимірювання результатів навчальної діяльності студентів, а й важливим інструментом підвищення рівня підготовки фахівців, посилення керованості навчального процесу. Тому особливо актуальним стає удосконалення засобів педагогічного контролю і методики оцінювання якості освітніх програм, забезпечення їх високого науково-методичного рівня.

Структурно методичні рекомендації складаються зі вступу, 3 розділів (лексичний матеріал яких підібраний за галузевим спрямуванням спеціальностей «Математика», «Фізика», «Інформатика»), списку рекомендованої літератури для самостійної роботи, відповідей до тестів. Тематичні розділи містять тексти для читання та передтекстові та післятекстові завдання, спрямовані на розвиток навичок ознайомлювального та вибіркового читання літератури за фахом (на встановлення відповідностей, вибір правильної відповіді з декількох запропонованих тощо), та тести з завданнями з «Use of English» (заповнення пропусків у тексті), спрямовані на розвиток та перевірку лексико-граматичних навичок, відпрацювання тестових стратегій.

Галузева спрямованість текстів сприяє розширенню іншомовної професійної комунікативної компетенції здобувачів вищої освіти. Методичні рекомендації можуть бути використані як під час аудиторних занять, так і для організації самостійної та індивідуальної роботи, а також при здійсненні дистанційних тренінгів з підготовки студентів до тестування з англійської мови. Всі вправи спрямовані на актуалізацію мовних знань та вдосконалення вмінь виконувати тестові завдання з англійської мови.

Методичні рекомендації можуть бути використані як додаткове навчально-методичне забезпечення при вивченні дисциплін «Англійська мова» (з урахуванням напрямку галузевої підготовки)», «Англійська мова у ситуаціях професійного спілкування», «Інтенсивний тренінг для складання мовних тестів» та при підготовці здобувачів вищої освіти першого (бакалаврського) рівня до складання іспиту у складі Єдиного вступного іспиту до магістратури.

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CHAPTER I. TEXTS IN MATHEMATICS

ACTIVITY 1.

I. Read the text. Find Ukrainian equivalents from the box to the words:

- ✓ a record
- ✓ a tablet
- ✓ a notation
- ✓ to obtain
- ✓ to advance
- ✓ to invent
- ✓ to represent
- ✓ to preserve

Отримувати, зберігати, винаходити, представляти, розвиватись, запис, дощечка.

II. Put the paragraphs in the correct order. Read and translate the text:

THE DEVELOPMENT OF ALGEBRA

A Though we should remember that the beginning of algebraic thinking dates back to the days of ancient Babylonia and Egypt. Algebra developed slowly in comparison with arithmetic and geometry. What is now known as elementary algebra is largely the work of mathematicians of the 16th and 17th centuries. Our present knowledge of Babylonian mathematics is possible thanks to the translation of mathematical records found on ancient tablets. These tablets are now preserved in the world's leading museums. The information obtained in this way proves that as early as 2000 B.C. the Babylonians had advanced very far in their study of mathematics. Using algebraic methods they were able to solve many problems.

B To begin with, the term "algebra" was taken from the long title of one of the works of an Arabian mathematician who lived in Baghdad in the 9th century. The long title was shortened to *al-jabr* and began gradually to take the form algebra. At one time there was much debate among scientists concerning the exact meaning of this title, but it may now be regarded as settled that the word *al-jabr* really means the "science of equations".

C As to our present symbols of operations, they are of comparatively modern origin. For example, the sign of equality (=) was invented by the English scholar Robert Recorde and appeared in 1557. The origin of the use of letters in algebra to represent known or unknown quantities is also of great interest. Among the mathematicians who invented algebraic notation, we must mention the names of Vieta, Harriot, Descartes; Newton and Leibniz.

D Moreover, something must also be said about the mathematical knowledge of the early Egyptians. There are manuscripts, written on papyrus and; dating from about 1850 B.C., which give us a clear picture of what they knew. Some of the problems they dealt with are of the kind we should now solve by using equations.

III. Complete the following sentences:

1. Algebra developed slowly…

2. Our present knowledge of Babylonian mathematics is possible thanks to…

3. Using algebraic methods they…

4. At one time there was much debate among scientists concerning…

5. There are manuscripts, written on…

6. Some of the problems they dealt with are…

7. The origin of the use of letters in…

IV. Find synonyms for words and phrases:

the origin; gradually; a debate; a scholar; to mention; to date back; ancient; to preserve; to obtain; to begin with; moreover; though.

V. Fill in the write preposition (to, by, of, among, with) and make sentences:

a clear picture____ what they knew; to deal ____; debates ____ scientists; in comparison___, to solve ___ using smth., thanks ____.

ACTIVITY 2. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6) There are two choices you do not need to use.

BASIC OPERATIONS OF ARITHMETIC

Now let us turn to the basic operations of arithmetic. There are four basic operations that you all know of, **1.**_____. In arithmetic an operation is a way of thinking of two numbers and getting one number. We were just considering an operation of addition. An equation like 7-2 = 5 represents an operation of subtraction. Here seven is the minuend and two is the subtrahend. We may say that subtraction is **2.**_____**.**

The same might be said about division and multiplication, which are also inverse operations.

In multiplication there is a number that must be multiplied. It is the multiplicand. There is also a multiplier. When we are multiplying the multiplicand by the multiplier **3.**_____ . When two or more numbers are multiplied, each of them is called a factor. In the expression five multiplied by two (5x2), the 5 and the 2 will be factors.

In the operation of division there is a number that is divided and it is called the dividend; the number by which we divide is called the divisor. When we are dividing the dividend by the divisor, **4**._____. But suppose you are dividing 10 by 3. In this case the divisor will not be contained a whole number of times in the dividend. You will get a part of the dividend left over. This part is called the remainder. Since multiplication and division are inverse operations, you may check division, 5._____.

There are two very important facts that must be remembered about division.

a. The quotient is 0 (zero) whenever the dividend is 0 and the divisor is not 0.
b. Division by zero **6.**_____.

A. we get the product as a result.
B. by using multiplication
C. they are addition, subtraction, multiplication and division.
D. is meaningless
E. the inverse operation of addition.
F. as a result of the operation you get five.
G. is the number by which we multiply
H. we get the quotient

ACTIVITY 3.

I. Read the text.

MATHEMATICS – HANDYMAN FOR ALL SCIENCES

Karl Friedrich Gauss, the famous 18th century mathematician, once called mathematics the queen of sciences. In our view, its role is much **loftier**.

Mathematics is a **handyman** working for all sciences. Today economists, linguists and psychologists *resort* to its services. Mathematics does its job so well that other sciences depend to some **extend on** this handyman.

Mathematics follows the changes taking place in various fields of knowledge and in this connection sets itself definite **targets**. At the same time, scientists in other spheres must closely follow the progress made in mathematics since it is impossible *to keep abreast* of latest developments in, say, physics without making use of mathematics.

The recent achievements in biogenetics, in particular, are closely linked with progress in mathematics. It would be impossible **to decipher** the genetic code, the code of heredity had we not had such terms as coding, transmission of information and so on.

Mathematics is often occupied with "strange" things. One of the leading mathematicians in the world, Andrei Kolmogorov, was making a thorough study of matters pertaining to higher nervous activity and to poetry. Of course mathematicians do not at all **intend** to **entrust** machines to write poetry for us. But Andrei Kolmogorov applied mathematics to analyzing the problems of writing verse.

In the 30s of 20th century it seemed that mathematics only studied

continuous functions, differentials, integrals, differential and integral equations. Yet, during the Second World War the first electronic computers were made. Few people know that once there were two points of view regarding mathematical machines. There were machines of discrete action and machines of continuous action, reproducing functions and processes. The upper hand was gained completely and *unequivocally* by the discrete machine, by *cipher computers*, because any discrete alphabet makes it possible to **record** the most *diverse phenomena* with *sufficient precision*. Modern electronic machines are designed on this **pattern.** They use a language possessing a small number of letters, but by **alternating** these letters, they can **describe** highly *intricate processes*.

Thus, Mathematics itself experiences a very strong **influence** of other sciences. The changes in mathematics connected with progress in other.

WORDS:

- ✓ *Resort – звертатися по допомогу*
- ✓ *handyman – майстер на всі руки*
- ✓ *to keep abreast – бути в курсі*
- ✓ *unequivocally – однозначно*
- ✓ *cipher computers – шифровані комп'ютери*
- ✓ *diverse phenomena – різноманітні явища*
- ✓ *with sufficient precision – достатня точність*
- ✓ *alternating – чергування*
- ✓ *intricate processes – складні процеси.*

II. State whether These Statements are True or False:

1) Mathematics is connected with other sciences very much.
2) Scientists in other spheres mustn't closely follow the progress made in mathematics.
3) Genetics is closely linked with progress in mathematics.
4) The code of heredity can be easily deciphered without mathematics.
5) Mathematics can be applied to analyzing the problems of writing verse.
6) During the First World War the first electronic computers were made.
7) Any discrete alphabet makes it possible to record the most diverse phenomena with sufficient precision

III. Complete the Following Sentences:

1) Karl Friedrich Gauss once called mathematics……..
2) Mathematics does its job so…….……..
3) Mathematics follows the changes…….….
4) The achievements in biogenetics are closely linked with……..
5) There were machines of discrete action and……...……..
6) Electronic machines use a language possessing……..……..
7) The changes in mathematics connected with……

IV. Look at the words in bold and try to explain them, then choose any three of them and make sentences.

V. Retell the text.

ACTIVITY 4.

I. Read the text below. Fill in the gaps with the words from the list below

For example, language, solve, envelope, symbols, purpose, height, valuable, amount, depend.

HOW LETTERS ARE USED IN ALGEBRA

Some mathematicians thought that the invention of _____was the greatest event in the history of man and that without them no intellectual advance could be possible. In thousands of offices all over the world a large ____of correspondence is looked through during the day. It would require much work and time to write all these letters in the usual way. That is why offices often ____on the services of stenographers who have mastered the art of commercial shorthand. In this way much _____time has been saved. After a business letter has been dictated, it is printed on a typewriter.

After that another kind of shorthand is used. It is illustrated by the address which is written on the_____. Each of the names in the address is preceded by certain initials._____, instead of writing the name James Parker Lewis, the shorter form J. P. Lewis has been used.

In the same way mathematicians have succeeded in developing mathematical shorthand, which is known as algebra. Let us suppose, for example, that we must find the size of a classroom. To do it we know its length, width and_____. In order to _____this problem use initial letters, writing *l* for "length", *w* for "width", *h* for “height". Many other examples could be given to show how the initial letters of important mathematical words are used for the _____of mathematical shorthand.

Algebra as a branch of mathematics is much younger than arithmetic or geometry. It is used in many applied fields. Algebra can be compared to a language, but it says more in fewer words, than any other_____.

II. Complete the Following Sentences:

1. In thousands of offices

.....

2. After a business letter has been dictated

.....

3. In the same way mathematicians

.....

4. Each of the names in the address

.....

5. Algebra as a branch

.....

6. Algebra can be compared to

.....

7. Many other examples could be given to

📖 III. Fill in the correct preposition, then choose any five items and make sentences.

1) To look ……. correspondence.; **2)** to be printed… a typewriter; **3)** to be preceded ……..certain initials; **4)** instead ……writing the name; **5)** in order ……. ; **6)** to be compared……. a language, **7)** all ……..the world; **8)** the event….. the history ……..man; **9)** to write ……the usual way; **10)** another kind …….shorthand.

📖 IV. Retell the text.

ACTIVITY 5. (MULTIPLE CHOICE)

📖 I. Read the text below. For questions (1-5) choose the correct answer (A, B, C or D).

CLOSURE PROPERTY

If we add two natural numbers, the sum will also be a natural number. For example, 5 is a natural number and 3 is a natural number. The sum, 8, is also a natural number. Following after other examples in which two natural numbers are being added and the sum is another natural number. 19+4=23 and only 23; 6+6=12 and only 12; 1429+357=1786 and only 1786. Since there is one and only one sum, we say that the sum is unique. This is called the uniqueness property.

Since this is true we say that the set of natural numbers is closed under addition. This is a statement of closure, one of special properties of addition.

Notice that we can name the sum in each of the above equations. That is the sum of 5 and 3 exists, or for example, there is a number which is the sum of 19 and 4. In fact the sum of any two numbers exists. These is called the existence property.

Both existence and uniqueness are implied in the definition of closure.

If a and b are numbers of a given set, then $a=b$ is also a number of that same set. For example, if a and b are any two natural numbers, then $a+b$ exists, it is unique, and it is again a natural number.

If we use the operation of subtraction instead of the operation of addition, we cannot make the statement we made above. If one natural number is being subtracted from another natural number the result produced is sometimes a natural number, and sometimes not. 11–6=5 and 5 is a natural number. 9–9=0 and 0 is not a natural number.

When two natural numbers are being multiplied there is always a natural number which is the product of the two numbers. Every pair of numbers has a unique product which is again a natural number. Thus the set of natural numbers is closed under multiplication.

In general, the closure property may be defined as follows: if x and y are any elements, not necessarily the same, of set A and *(asterisk) denotes an operation*, then set A is closed under the operation if (x*y) is an element of set A.

It must be pointed out that it is impossible, to find the sum or the product of every possible pair of natural numbers. Hence, we accept the closure property without proof, that is an axiom.

1. Which of the following is **TRUE about** adding two natural numbers?
   A The sum is a whole number.
   B The sum is an unnatural number.
   C The sum is a natural number too.
   D The sum is fractional numbers.

2. The uniqueness property means that
   A may be different meanings of the sum
   B the sum is less than one of the terms
   C the sum is always rounded
   D there is one and only one sum
3. If a and b are any two natural numbers, then $a+b$ exists, it is unique, and **it is again a natural number**. We can make this statement (in bold) if
   A we use the operation of subtraction
   B we use the operation of addition
   C we use both operation of addition and subtraction
   D we can't make this statement in any of these options
4. When two natural numbers are being multiplied there is always a natural number which
   A is the product of the two numbers
   B is the sum of the two numbers
   C is the quotient of the two numbers
   D is the difference of the two numbers
5. According to the text
   A an axiom must be proved
   B an axiom mustn't be proved
   C the closure property isn't an axiom
   D the closure property must be proved.

ACTIVITY 6.

I. Read the text.

TRIGONOMETRY

The word "trigonometry" is derived from the Greek word, meaning "three-angle measurement". *Trigonometry* is a branch of mathematics which deals with the relations among the angles and sides of triangles and the relations among the trigonometric functions of these angles.

In the past the main thing in trigonometry was the measuring of the parts of triangles. The modern trigonometry is not so much interested in solving triangles

as in its being applied to sciences. It includes all kinds of investigations of trigonometric functions of angles and numbers. It also includes the relations among functions, the meaning and the use of vectors, complex numbers and solutions of triangles.

Trigonometry is not a new subject. It was known even before the Greeks developed geometry. The earliest investigations in trigonometry are believed to have appeared about 2000 B.C. Some scientists consider Hipparchus (born about 160 B.C.) to have been the father of trigonometry as a science. He prepared a table of chords of circles. Ptolemy, who lived about 150 A.D., developed the subject by extending the table of chords.

In the first century B.C. the great mathematician Heron introduced the tangent function when he was making a study of the areas of polygons. The Hindus and Arabs have contributed to trigonometry too. The Hindus, for example, replaced the table of chords by a table of half chords (a table of sines). The Arabs were the first to discover the law of sines and the law of cosines for spherical triangles. The trigonometry of the Arabs came to Europe in the 14th century.

The first book on trigonometry was written in 1464 A.D. by Johann Mueller. Isaac Newton (1642–1727), one of the greatest mathematicians, developed a mathematical series by which the value of sin x could be determined. He also made improvements in the tables. Among later mathematicians who succeeded in developing trigonometry the name of Leonard Euler (18th century) may be mentioned.

In the early stages trigonometry was used in measuring heights and distances. Later it was used in studying and developing astronomy. Since the 20th century trigonometry has become a study of the properties of' the trigonometric functions and their use in science and mathematics.

WORDS:

- ✓ trigonometry – тригонометрія
- ✓ angle – кут
- ✓ triangle –трикутник
- ✓ polygon – багатокутник
- ✓ a table of chords – таблиця хорд
- ✓ A.D. = anno Domini – (лат.) Нової (нашої) ери
- ✓ B.C. = Before Christ
- ✓ a table of sines – таблиця синусів
- ✓ cosine – косинус

II. State whether These Statements are True or False:

1) Trigonometry is a branch of physics.
2) The modern trigonometry is interested in solving geometric problems triangles.
3) Trigonometry is a new subject.

4) The Hindus were the first to discover the law of sines and the law of cosines for spherical triangles.
5) The first book on trigonometry was written by Johann Mueller.
6) In the early stages trigonometry was used in measuring heights and distances.
7) Now trigonometry is used only in studying astronomy.

III. Complete the Following Sentences

1) The word "trigonometry" is…….…….
2) Trigonometry deals with……..…….
3) The modern trigonometry includes……..…….
4) Ptolemy developed……...……
5) Heron introduced……..
6) The Hindus replaced ……
7) The Arabs were the first to discover ……..…….
8) The first book on trigonometry was written in……by…….
9) Isaac Newton developed a mathematical…….
10) Since the 20th century trigonometry has become a study of…….

IV. Rewrite the sentences using who, which

1. Trigonometry is a branch of mathematics. It deals with the relations among the angles and sides of triangles.
2. Ptolemy was a great mathematician. He lived about 150 A.D.
3. The trigonometry of the Arabs came to Europe in the 14th century.
4. Among later mathematicians the name of Leonard Euler (18th century) may be mentioned. He succeeded in developing trigonometry.
5. Isaac Newton developed a mathematical series by which the value of sin x could be determined. He was one of the greatest mathematicians.

V. Retell the text

ACTIVITY 7.

I. Read the text.

THE TRUTH IN GODEL'S PROOF

Ever since the time of Euclid, 2,200 years ago, mathematicians have tried to begin with certain statements called "axioms" and then deduce from them all sorts of useful conclusions.

In some ways it is almost like a game with two rules. First, the axioms must be as few as possible. If you can deduce one axiom from the others, that deduced axiom must be dropped. Second, the axioms must be self-consistent. It must never be possible to deduce two conclusions from the axioms with one the negative of the other.

Any high school geometry book begins with a set of axioms: that through any two points only one straight line can be drawn; that the whole is equal to the sum of its parts, and so on. For a long time, it was assumed that Euclid's axioms were the only ones that could build up a self-consistent geometry to that they were "true".

In the 19th century, however, it was shown by a famous scientist Godel that Euclid's axioms could be changed in certain ways and that different "non-Euclidean geometries" could be built up as a result. Each geometry was consistent from the others, but each was self-consistent. After that it made no sense to ask which was "true". One asked instead which was useful.

In fact there are many sets of axioms out of which a self-consistent system of mathematics could be built; each one consistent, each one self-consistent.

In any such system of mathematics you must not be able to deduce from its axioms that something is both so and not-so, for then the mathematics would not be self-consistent and would have to be scrapped. But what if you make a statement that you can't prove to be either so or not-so?

WORDS

- ✓ **conclusions** – висновок
- ✓ **deduce** – виводити висновок, простежити, встановити походження
- ✓ **consistent** – послідовний, сумісний
- ✓ **scrap** – викидати за непотрібністю

II. Read the text and match the questions with the correct answer.

1. The writer of the text wants
A) to warn people how difficult mathematics is as a science.
B) to tell about Godel's theory.
C) to demonstrate the content of high school geometry books.

2. The text gives readers
A) tips on learning geometry.
B) a warning about wrong formulas.
C) the history of "non-Euclidean geometries".

3. According to the text, the whole is equal to the sum of its……
A) tips.
B) formulas.
C) parts.

III. Match words 1–5 with words A–E. Translate the expressions into Ukrainian. Then make your own sentences using these word combinations in English.

1. straight	**A** conclusions
2. high	**B** consistent
3. set of	**C** school

4. self-
5. useful

D line
E axioms

IV. Find the words in the text derived from the words:

Mathematics, use, consistent, science, prove, equality, draw.

V. Retell the text.

ACTIVITY 8. (MULTIPLE MATCHING)

I. Read the text below. Match choices (A-H) to (1-5). There are three choices you do not need to use.

WHOLE NUMBERS

1. Many statements in mathematics are concerned not with a single number but with a set of numbers that have some common property. For example, such a set of numbers is the set of even numbers 0, 2, 4, 6…or set of odd numbers 1, 3, 5, 7… When you write 6x3=18 it means that you write number 18 as a product of two whole-number factors. Another pair of whole-number factors will be 9 and 2. Since 2x9=18. Will you be able to name other factors of 18? Let us agree to call 6 and 3 just one pair of factors of 18.

2. When you use 0 as one of the factors, what should the product be? That is, 0 times 5 equals what number? Or 7 times 0 equals what number? The answer for these questions is summarized in the following statement: For any number *a*, *ax0=0*

3. Since *ax1=a* for any number a, we know that 1 is a factor of every whole number. Let us agree to omit 1 as a factor when naming a number in factored form.

4. You already know that every whole number has 1 and itself as a factor. That is *9x1=9* and *11x1=11*. Some such numbers have only 1 and themselves as a factor. Since its only factors are 1 and 5, 5 is such a number. A whole number is called a *prime number*, or just a *prime* if: It is greater than one and its only factors are 1 and itself.

5. A composite number is a positive integer that can be formed by multiplying two smaller positive integers. Any whole number other than 0 or 1 which is not a prime number is called a *composite number*, or just a *composite.*

A. This factor can be omitted.
B. Common properties for even numbers.
C. Its only factors are 1 and itself.
D. Common properties for Whole numbers
E. Common properties for odd numbers.
F. If you want to get zero in your result.
G. One way to classify composite numbers.
H. Whole numbers not including prime numbers.

II. Match the words (1-7) with their definitions (a-g)

1) a whole number	**a)** an integer greater than 0.
2) a prime number	**b)** a statement that is taken to be true.
3) a composite number	**c)** an integer that can be divided by two and remain an integer or has no remainder.
4) an odd number	**d)** a whole number greater than 1 whose only factors are 1and itself
5) an even number	**e)** an integer when divided by two, either leaves a remainder or the result is a fraction.
6) a natural number	**f)** an integer that is 0 or greater.
7) an axiom	**g)** a positive integer that can be formed by multiplying two smaller positive integers.

ACTIVITY 9. USE OF ENGLISH. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

WHY FORMULAS ARE IMPORTANT

There **1.**_____at present millions of different homes all over the world. Naturally, the problem of housing **2.**_____every person.

Perhaps you have never **3.**_____of the amount of planning that even a small house requires before **4.**___ construction begins. **5.**_____questions have to be solved before the architect designs such a house: questions of dimensions, of materials and, of probable, costs. After the blueprints have been completed a lot of computing and figuring must be **6.**_____. The same problems 7._____in manufacturing automobiles, airplanes and machinery.

The computational work which is necessary in solving **8.**_____ problems is simplified by using formulas. They have been discovered and developed **9.**_____ the combined effort of mathematicians, scientists and engineers. That is why the formula has been called a key to knowledge.

A mathematical formula arises when a mathematical rule or relation is written in the shorthand of algebra. Therefore it is very important to be able **10**_____the rule or relation which underlies **11**. _____ formula. We can also **12.**____ formulas from tables.

1.

A is **B** are
C was **D** were

2.

A concern **B** is concerned
C concerns **D** was concerned

3.

A thought **B** think
C thinked **D** thinks

4.
A its **B** it
C it's **D** its'

5.
A much **B** little
C many **D** a little

6.
A do **B** did
C does **D** done

7.
A arise **B** to arise
C arises **D** has arisen

8.
A this **B** those
C that **D** these

9.
A on **B** with
C by **D** through

10.
A discover **B** discovered
C to discover **D** discovering

11.
A such a **B** so
C such **D** so as

12.
A to obtain **B** obtain
C obtaining **D** obtained

ACTIVITY 10. USE OF ENGLISH. GAP FILL (GRAMMAR)

🕮 I. Read the text and complete the gaps (1-5) using the correct answer (A-D) from the options given below.

BAD NAMES FOR GOOD NUMBERS

Complex numbers were first introduced 1____the Italian mathematicians of the 16th century, 2 ___ found that it was impossible to solve certain equations without them. In those days some mathematicians used only one number system of positive and negative numbers. They thought that the numbers in this system 3_____ genuine and therefore called them real.

One must know that the complex numbers did not belong to the real number system. So, although they were used as a convenience, the mathematicians regarded them as unreal and called 4_____imaginary. Rene Descartes, the great mathematician of the 17th century, 5_____the reality of these numbers, so

there wasn't anything surprising in the fact that he rejected them altogether.

Today we realize that there are 6____ number systems. All 7_____equally genuine, although they differ in some way from one 8_____. But we still use the old names, "real numbers" and "imaginary numbers". So one must be careful not 9_____ influenced by the old meanings expressed in 10_____names. When using the term "imaginary numbers" today, we must remember that this is only a technical term. When 11_____ of imaginary numbers we must 12 ____ that they are genuine numbers.

1.
A with **B** –
C by **D** who

2.
A when **B** who
C where **D** what

3.
A was **B** is
C were **D** are

4.
A they **B** them
C their **D** it

5.
A doubt **B** doubted
C doubts **D** was doubted

6.
A many **B** little
C much **D** a little

7.
A is **B** am
C are **D** was

8.
A the others **B** other
C others **D** another

9.
A to be **B** be
C being **D** been

10.
A this **B** that
C these **D** those

11.
A to speak **B** speaks
C speak **D** speaking

12.
A to understand **B** understands
C understand **D** understanding

ACTIVITY 11. USE OF ENGLISH. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

MATHEMATICAL SYMBOLS

We cannot live a day **1.** ._____ numerals. Numbers and numerals are **2.**_____. On this page you will see number names and numerals. The number names are: zero, one, two, three, four and so on. And here are the corresponding numerals: 0, 1, 2, 3, 4, and so on. In a numeration **3.**_____numerals are used to represent numbers, and the numerals are grouped in a special **4**._____. The numbers used in our numeration system are called digits.

In our Hindu-Arabic system we use only ten **5.**_____: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 to represent any number. We use the same ten digits over and over again in a place-value system whose base is **6.**_____.

These digits may be used in various combinations. Thus, for example, 1, 2, and 3 are used to write 123, 213, 132 and so on.

One and the same number could be represented in various ways. For example, take 3. It can be represented as the sum of the numbers 2 and 1 or the difference between the numbers 8 and 5 and so on.

A very simple way to say that each of the numerals names the same number is to write an 7._____ – a mathematical sentence that has an equal sign (=) between these numerals. For example, the sum of the numbers 3 and 4 equals the sum of the numbers 5 and 2. In this case we say: three plus four (3+4) is equal to five plus two (5+2). One more 8._____of an equation is as follows: the difference between numbers 3 and 1 equals the 9_____between numbers 6 and 4. That is three minus one (3-1) equals six minus four (6-4). Another example of an equation is 3+5 = 8. In this case you have three numbers. Here you add 3 and 5 and get 8 as a 10._____. 3 and 5 are addends (or summands) and 8 is the sum. There is also a plus (+) sign and a sign of equality (=). ***They are mathematical symbols***.

1.

A out of
B with
C off
D without

2.

A everybody
B everyone
C everywhere
D anywhere

3.

A system
B line
C equation
D difference

4.

A line
B group
C way
D reason

5.

A numbers **B** numeric
C figures **D** digits

6.
A one **B** ten
C hundred **D** zero

7.
A equation **B** sum
C figures **D** zero

8.
A figure **B** example
C sum **D** reason

9.
A sum **B** equation
C result **D** difference

10.
A difference **B** result
C sum **D** line

ACTIVITY 12. (GAPPED TEXT)

🕮 I. Find Ukrainian equivalents from the box to the words:

Наслідок, площина, припущення, відповідно, поверхня, межувати, попередня умова, крапка, бісектриса, кут.

- ✓ respectively – .....
- ✓ a bisector – .....
- ✓ an angle – .....
- ✓ to survey – .....
- ✓ a postulate – .....
- ✓ a corollary – .....
- ✓ a point – .....
- ✓ assumption – .....
- ✓ a plane – .....

🕮 II. Read the following text, from which five sentences have been removed. Choose from the sentences (A-F) the one which fits each gap (1-5) to obtain a logical and grammatically correct text. There is one extra sentence that you do not need to use.

GEOMETRY

The word “geometry” comes from the Greek words *geos* and *metron* which mean respectively “earth” and "measure". **1.** _____ Geometry is the basis of many things that we use today. It is a study of the size, shape and position of figures in space.

Geometry has practical value. It is necessary for people in many occupations and it is also necessary in the study of physics, engineering, architecture and related subjects.

In geometry we use such terms as triangle, angle, bisector, perpendicular and circle. To develop facts about geometric concepts, we prove statements concerning them. The statements we accept without proof are called postulates, or axioms, or assumptions.

2._____The basic figures in geometry are points, lines and planes.

We represent a point on paper by a dot., though the dot is not a real geometric point.

3._____ But if we want to make a picture of a point, we can use a dot arid place a capital letter near it. Thus, .A represents a point.

Like a point, a geometric line is a mental concept. To represent a straight line we draw a picture of a line along a ruler. **4.**_____

In space there are sets of points which we call planes. Objects with flat surfaces, such as a table or a mirror, are planes, but no matter how flat a surface is, it is not a geometric plane. **5**._____ A plane is most often represented as a parallelogram.

A Each geometry was different from the others, but each was self-consistent.

B Statements that we can prove are called theorems or corollaries.

C A geometric point is a mental concept, it has no length, breadth or thickness, that is, no size.

D Geometry probably appeared with the efforts to survey land.

E A geometric plane cannot be seen – it can only be imagined.

F A straight line is named by any two points on it or by a small letter near it.

🕮 III. Put the words in the correct order to make sentences.

1. Basis, things, Geometry, many, of, the, is.

.....

2. In, lines, figures, planes, basic, geometry, are, points, and, the.

.....

3. Value, practical, Geometry, has.

.....

4. Which, call, sets, are, we, planes, there, points, of.

.....

5. A, point, concept, geometric, mental, is, a.

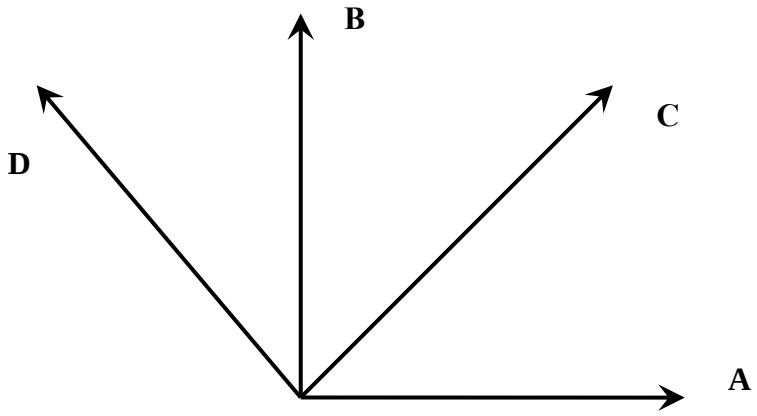
.....

🕮 IV. Make questions to each sentence.

1. In geometry we use such terms as triangle, angle, bisector, perpendicular and circle.
2. Geometry is a study of the size, shape and position of figures in space
3. Geometry appeared with the efforts to survey land.
4. Geometry is necessary for people in many occupations.
5. Geometry is necessary in the study of physics, engineering, architecture and related subjects

V. Retell the text.

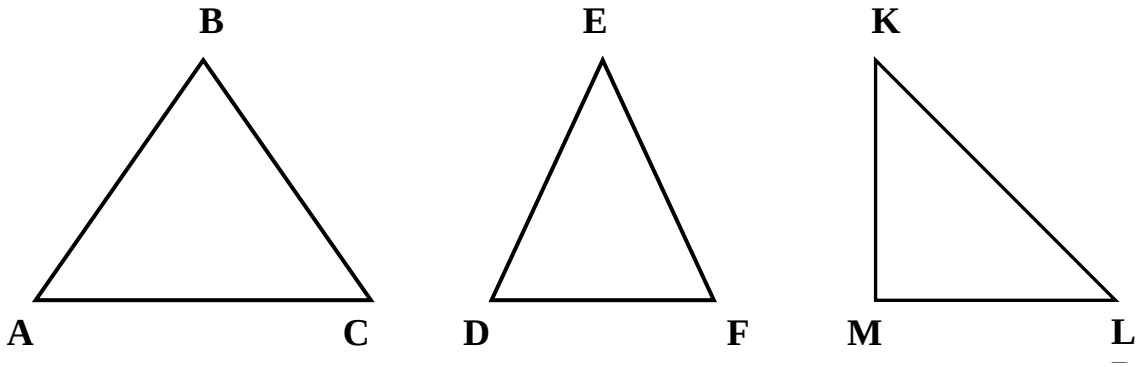
VOCABULARY PRACTICE



I. Fill in the correct word from the list below:

hypotenuse; a right triangle; obtuse angle; four; equilateral triangle; an isosceles triangle; the legs; two; opposite; an acute angle; parallel; right angle.

1. In the drawing ray $\overrightarrow{PA}$ and ray $\overrightarrow{PB}$ form a……..
2. CPA being less than 90 we call it an…….
3. APD is greater than 90 we call it an……



4. Triangles may be classified according to the measures of the angles or the measures of the sides.
5. Δ ABC is referred to as an…… The sides of such a triangle all have same linear measure.
6. ΔDEF is called ……..which means that its two sides have the same measure.
7. ΔMKL being referred to as ……. means that it contains 1 right angle.
8. In ΔMKL , ΔM is the right angle, sides MK and ML are called……., and side KL is called the ……..
9. The hypotenuse refers only to the side ……..to the right angle of a right triangle.
10. Quadrilaterals are geometric figures having …….sides. A trapezoidal has only ……parallel sides.
11. A parallelogram is a quadrilateral whose opposite sides are …….

II. Match the adjectives with the nouns.

1. Right	**A)** figure
2. Opposite	**B)** angle
3. Straight	**C)** side
4. Exact	**D)** line
5. Geometric	**E)** location

CHAPTER II. TEXTS IN PHYSICS

ACTIVITY 1. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6) There are two choices you do not need to use.

NEWTON

The greatest of natural philosophers, was born on 25th December 1642 – year remarkable in the history of science **1.**_____. He was born at the hamlet of Woolsthorpe in Lincolnshire in the family of a farmer.

He received his early education at the grammar-school at the same hamlet. On the 5th June 1661 he left home for Cambridge, **2.**_____. He applied himself there to the mathematical studies. After a few years he began to make some progress in the methods for extending the science.

In 1666, the fall of an apple, **3.**_____, suggested the most magnificent of his subsequent discoveries – the law of universal gravitation.

He accordingly abandoned the hypotheses for other studies. He investigated the nature of light and was led to the conclusion that rays of light **4.**_____differ also in refractivity.

Newton became a professor of mathematics in 1669. In 1671 he resumed his calculations about gravitation. In 1696 he was appointed warden of the Mint and was afterwards promoted to the office of Master of the Mint in 1699, **5.**_____. He took a seat in parliament in the year 1701 as the representative of his university.

A mathematical feat is recorded of him so late as 1716 in solving a problem proposed by Leibnitz for the purpose, as he expressed it, of feeling that pulse of the English analysts.

In 1699 Newton was elected a foreign associate of the Academy of Sciences. He died at Kensington on 20th March 1727 and was buried at Westminster Abbey, **6.**_____in 1731.

A. as he walked in the garden at Woolsthorpe
B. an office which he held till the end of his life
C. where he was admitted the same year
D. which differ in colour
E. as he was swimming
F. which were red
H. by the birth of Newton and the death of Galileo
G. where a monument was erected to his memory

WORDS

- ✓ *hamlet* – селище;
- ✓ *to extend* – поширювати;
- ✓ *to abandone* – відмовитися, покинути;
- ✓ *refractivity* – заломлювальна здатність.

ACTIVITY 2. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

THE LAW OF UNIVERSAL GRAVITATION

Newton's law of universal gravitation **1.**_____ in the following manner:

Any two material particles attract each other with a force directly proportional to the product of their masses and inversely **2.**_____to the square of the distance between them.

In other words, the magnitude of the force of attraction is expressed by the formula.

$$F = G\frac{m_1 m_2}{r^2}.$$

where F is the force of attraction, m_1 and m_2 are the masses of both particles, r^2 is the distance **3.**_____them, and G is the factor of proportionality (the constant of universal gravitation).

4._____the law of equality of action and reaction, the force with which the first particle attracts the second is equal in magnitude and opposite in direction to the force with which the second particle **5.**_____the first. Both of these forces act along a straight line connecting the given particles.

It is evident that the factor of proportionality is numerically equal to the magnitude of the force of attraction of two particles with masses equal to unity and at a unit distance from one **6.** _____. The choice of the units of measurements is arbitrary. The centimeter-gram-second system of units used in physics is not convenient for the study of the motion of **7.** _____ bodies, where mass and distance are expressed by huge numbers in **8.** _____units.

Gauss proposed to use the semi major axis of the **9.**_____ orbit for the unit of length, the mass of the sun for the unit of mass, and the mean solar day for the unit of time. By the same token, the numerical value of the constant of gravitation G is determined (which in physics is designated differently because of selection of other units).

It is shown in the theory of potential **10.** _____ bodies of finite dimensions attract one another. Formulas derived there find application in theoretical astronomy when it is necessary to consider the motion of bodies during their Immediate approach to one another (for example, the periodic Comet Brooks II during **11.** _____ approach to Jupiter In 1886), but such cases are rarely **12.** _____.

In general, however, one may consider that bodies of the solar system attract one another mutually as material points.

COMMENTS

1. *The law of equality of action and reaction* – закон дії та протидії (3-й закон Ньютона).
2. *Numerically equal* – чисельно рівний.

3. *The semimajor axis*– велика піввісь.
4. *The mean solar day* – середня сонячна доба (середня доба).
5. *By the same token* – до того ж (крім того).

1.
A formulates **B** is formulated
C formulated **D** formulate

2.
A proportion **B** proportionally
C proportional **D** proportionality

3.
A between **B** along
C among **D** in

4.
A Among **B** By
C According to **D** With

5.
A attracted **B** attracting
C attract **D** attracts

6.
A other **B** another
C others **D** the other

7.
A astronomical **B** astronomy
C astronomically **D** astronomic

8.
A this **B** these
C that **D** those

9.
A earth's **B** earths’
C earths **D** earth

10.
A where **B** which
C why **D** how

11.
A it **B** its
C it’s **D** its’

12.
A meet **B** meets
C met **D** meeting

ACTIVITY 3. (MULTIPLE MATCHING)

I. Read the texts below. Match choices A-G to the texts 1-5. There are two choices you do not need to use.

1. LEIBNITZ

Distinguished for almost universal scholarship especially in philosophy and mathematics Leibnitz was born in 1646 at Leipzig. He invented a calculating machine and devised what was in many respects a noble method of calculations. This gave rise to a controversy with Newton as to which of them first invented this valuable mathematical method. Leibnitz was also a pioneer in the science of comparative philology.

2. EUCLID

Euclid is known to us almost exclusively from those of his works which have survived. He lived in Egypt approximately 300 B.C. and taught in Alexandria, he was the founder of its illustrious mathematical school. His chief extent work is the *Elements* in 13 books , which treat of plane geometry, of proportion in general, of the properties of numbers, of incommensurable magnitudes, of solid geometry. Euclid's *Elements* has been translated into many languages, and is probably better known than any other mathematical book, with many of its blemishes removed, it is still widely used in Britain as a text-book of geometry.

3. PYTHAGORAS

Pythagoras is for us at once the glorified and the actual founder of the philosophical school, he was also a great mathematician who investigated harmonies and properties of numbers. His attention was turned to the odd and even, to prime numbers, square numbers and so. The great mathematical discovery of Pythagoras is of course a hypotenuse theorem, where the square is equal to the sum of two squares. Various other theorems are closely connected with this cardinal one; they concern chiefly the squares of the various perpendiculars which may be let fall from different angles of the right-angled triangle upon the hypotenuse and side.

4. GAUSS

Karl Friedrich Gauss, German mathematician, the author of works on the theory of numbers and other analytical subjects: *Disquisitions Arithmetical.* He also worked with equally brilliant success in the science of geodesy and astronomy. He published a collection of valuable memoirs on surface geometry. He also studied the problems arising out of the earth's magnetic properties. In applied mathematics he investigated the problems connected with the passage of light through a system of lenses. Besides the researches already mentioned he wrote works on probability, the method of least squares, the theory of biquadratic residues, constructed tables for the conversion of fractions into decimals and of the number of classes of binary quadratic forms, and discussed hyper-geometric series, interpolation, curved surfaces, all of which he printed in the seven volumes of his collected works.

5. LOBACHEVSKV

Euclid gave the axiom on parallel lines asserting that there can be only one parallel to the given line through the point outside that line. It was this theory that

Lobachevsky attacked. Lobachevsky proved that there could be several parallels -to the given line through a point outside that line. The revolution in geometry achieved by Lobachevsky is the most significant example of the radical transformation which our conceptions of space have undergone. He demonstrated the need to study the properties of real space experimentally, his ideas exercised a profound influence in the development not only of geometry but also of other mathematical sciences, as well as on mechanics, physics and astronomy.

Which of the scientists_____?

A. was buried at Westminster Abbey
B. is the author of very famous theorem in geometry
C. was arguing with another scientist who had first invented calculus.
D. the author of the law of universal gravitation
E. replaced the postulate of ancient Egyptian mathematics having used hyperbolic geometry
F. wrote a lot of books in geometry, which are still very popular all over the world
G. successfully studied both earth and stars

ACTIVITY 4. GAP FILL (GRAMMAR)

🕮 I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

ABOUT COMMON FRACTIONS

„Fractio" is a Latin word meaning "to break". When a bone is fractured, it is broken. Fractions, in arithmetic, are used **1.**_____parts.

Several thousand years before the beginning of our era the Egyptians living in the valley of **2.**_____ Nile River, had a **3.**_____ developed civilization. The fractions which they used were unit fractions. A unit fraction has 1 for its numerator. When the Egyptians wished to express the quantity which we call 3/4, they used 1/2+1/4.

The Babylonians, who lived in **4.**_____ Asia, thought of the whole as being broken into sixty equal parts. Each of **5.**_____sixty parts was thought of as broken into sixty equal parts. These fractions were called sexagesimal fractions, from "sexaginta" meaning 60. We still use the idea of these fractions in dividing our hour into 60 minutes and each minute into 60 seconds. The quantity which we call 3/4 would pave been 45/60.

6._____used sexagesimal fractions too. They also used unit fractions which were represented by writing the denominator followed by an accent (''). 1/4 would have been written as 4 with an accent after it, thus 4''. **7.**_____they used fractions which were not unit fractions they **8.**_____the numerator once and the accented denominator twice. Using then Symbols for 3 and 4 they would have written 3/4 as 34''4''.

The Romans divided the whole into 12 parts. Englishmen still **9.**_____one foot into 12 parts or inches. In **10.** _____seventh century of our era, a Hindu writer used the plan of writing the numerator over the denominator, 3/4 would then be $\frac{3}{4}$.

The Arabs made one more 11_____, inserting a bar between the numerator and denominator, giving us a 12_____form for writing fractions $\frac{3}{4}$.

1.
A express **B** expressing
C expresses **D** to express

2.
A – **B** a
C the **D** an

3.
A high **B** highly
C highest **D** higher

4.
A southwest **B** southwesterly
C southwestern **D** southwestwards

5.
A this **B** these
C that **D** those

6.
A The Greeks **B** Greeks
C The Greek **D** Greek

7.
A Where **B** Why
C How **D** When

8.
A write **B** wrote
C written **D** have written

9.
A divide **B** divided
C divides **D** dividing

10.
A – **B** a
C the **D** an

11.
A change **B** changing
C changes **D** changeable

12.
A presenting **B** presented
C present **D** presents

ACTIVITY 5. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6). There are two choices you do not need to use.

A little more **1.**_____our mechanical development had its beginning when the first prime movers were invented and developed. With the development of machines came the development of mechanics to fabricate the parts, to assemble them into the finished articles, and to run these machines. **2.**_____has been marvelous, the accuracy of workmanship of today being easily two hundred times that of a century ago, and the speed of manufacture probably much more than this. **3.**_____one industry has helped to develop another, until today the mines produce ore in large quantities to supply the iron, copper, and other metals; the great steel mills supply the raw or fabricated material; the foundries and forging shops fashion the many castings and forgings for the intricate machine to be built; the immense shops machine the parts and assemble them for the market. Everywhere we turn, we find a manufactured article which has experienced these various changes from raw material **4.**_____.

"Production" methods have enormously increased the output of our shops, and the machines which have made this development possible are of a diversified character speed lathes, planers, multiple drillers, grinders, milling machines, stamping machines, die presses and the jigs, tools **5.**_____. All of these have contributed to the accuracy and speed of manufacture. The demands of the railroad industry have done wonders in hastening this development as the manufacture of the parts in duplicate was absolutely necessary in order to **6.**_____.

A. to finished product
B. at last
C. which go with them
D. since that time
E. than a century ago
F. cheapen the price of the assembled machine
H. the evolution of both machines and mechanics
G. in the absence of

ACTIVITY 6. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

HOW DO WE TURN WASTE INTO ENERGY?

They say one man's trash is another man's treasure – that's exactly the case when it comes to waste energy

In 2014, the UK generated 209 million tons of rubbish. Of that, 44.9 per cent **1)** _____ (including recycling and energy recovery) and 23.1 per cent was sent to landfill. We are **2)** _____searching for a more efficient and beneficial way to dispose of our waste.

As well as diligently recycling our rubbish, waste-to-energy plants provide one alternative to landfill the waste is disposed of and **3)** _____ provide energy to produce fuel and electricity. There are **4)** _____different ways that can be done using thermal energy and biological processes. Thermal processes involve methods like gasification, thermal depolymerisation and pyrolysis; all rather complex procedures that essentially use the application of high temperatures **5)** _____the waste and release energy. The non-thermal waste-to-energy processes use microorganisms to decompose organic matter and release biogas. These processes often take much longer but **6)** _____much more eco-friendly.

The advantages of waste-to-energy technology **7)** _____that less waste gets sent to landfill. This means less methane – a damaging greenhouse gas - is produced from decomposing rubbish and less leachate (which pollutes groundwater) leaks from the site. **8)** _____ advantage is that more energy can be created without burning fossil fuels and releasing greenhouse gases. However, despite the advantages, there are also **9)** _____serious environmental concerns.

The burning of so much mixed waste can release harmful chemicals, **10)** _____ dioxins and furans (carcinogens released **11)** _____plastics such as PVC) as well as heavy metals, acidic gases, sulphur and nitrogen oxides and particulate matter. Although there are many pollution control processes in effect, not enough is yet known about the extent of the chemicals released and **12)** ____impact on the environment and human health.

1.

A is recovered
B are recovered
C was recovered
D recovered

2.

A constant
B inconstant
C constantly c
D inconstantly

3.

A use
B used to
C using
D used

4.

A few
B little
C a few
D a little

5.

A break down
B to break down
C breaking down
D broke down

6.

A considering
B considered
C considere
D are considered

7.

A is
B was
C are
D were

8.

A Another
B others

C other **D** the others

9.

A some **B** none

C any **D** anything

10.

A so as **B** such a

C as so as **D** such as

11.

A by burn **B** by burning

C burning **D** burnt

12.

A their **B** there

C theirs **D** them

ACTIVITY 7. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6). There are two choices you do not need to use.

HOW DO RECHARGEABLE BATTERIES WORK?

All batteries rely on chemical reactions **1)_____**. Inside a battery are two electrodes made of different sorts of metal, named an anode and a cathode, and an electrolyte, often an acid. Chemical reactions between the electrodes and electrolyte create a flow of electrons from anode to cathode **2)_____**– an electric current.

In the process the electrodes and electrolyte gradually become depleted **3)_____**. In a non- rechargeable battery this reaction is irreversible, and the battery will eventually stop working. **4)_____** an electric current is passed the opposite way through the battery. This reverses the chemical reaction and rejuvenates the electrodes and electrolyte to a state **5)_____**. However, even a rechargeable battery can only be recharged a certain number of times **6)_____**.

A) before it can no longer hold a charge;
B) when the battery is connected;
C) when a rechargeable battery is charging;
D) to produce an electric current;
E) before you could check your battery;
F) where they can once again produce electricity;
G) as they react with each other;
H) when recharging it.

ACTIVITY 8. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-15) using the correct answer (A-D) from the options given below.

HOW ARE DIGITAL IMAGES CAPTURED?

How a camera converts light into photo files on a memory card.

With the simple click of a button, a digital camera **1)** _____light into data. **2)** _____process starts with the image sensor, which is a silicon chip **3)** _____as a CCD or CMOS. When light enters the camera lens, it is focused onto the sensor and dislodges **4)** _____ of the electrons in a tiny area of the silicon (known as a pixel), **5)** _____ creates an electrical charge. The brighter the light in that part of the image, the **6)** _____ the electrical charge that is created at that spot on the sensor.

On **7)** _____ own, the sensor is colour-blind. To produce a colour image, red, green and blue filters are used to detect **8)** _____ primary colour of light. There are **9)** _____ methods of doing this, but the most simple involves a mosaic of coloured filters laid over the sensor. Each site on the sensor can **10)** _____ the amounts of red, green and blue light passing through a set of four pixels on the mosaic. The colour intensity at each pixel is averaged with the neighbouring pixels to recreate the true colours of the image using special algorithms that run **11)** ____ the camera's Central Processlng Unit (CPU).

Each pixel needs some circuitry around it to allow electrical charges **12)** _____ and read. The light that falls on this part of the sensor chip is lost, so some cameras use a grid of microscopic lenses that funnel **13)** _____ light to the centre of the pixels and away from the support circuitry.

The basic image data **14)** _____ then further processed to remove digital noise, correct for shadows cast by the camera lenses, and eliminate the flicker caused by artificial lighting. This data is then assembled into a format that can be read **15)** _____ other computers and written to the SD card as a JPEG file.

1.
A turn **B** are turning
C turns **D** turned

2.
A this **B** that
C these **D** those

3.
A knowing **B** known
C to know **D** know

4.
A none **B** any
C anyone **D** some

5.
A where **B** whose

C which **D** who

6.

A the strongest **B** stronger
C strong **D** strongest

7.

A it's **B** it
C its' **D** its

8.

A every **B** each
C everyone **D** each one

9.

A a few **B** little
C few **D** a little

10.

A to record **B** recording
C record **D** recorded

11.

A on **B** in
C with **D** through

12.

A amplified **B** to be amplified
C be amplified **D** amplifying

13.

A more **B** much
C most **D** the most

14.

A was **B** are
C were **D** is

15.

A by **B** in
C with **D** through

ACTIVITY 9. (MULTIPLE CHOICE)

🕮 I. Read the text below. For questions (1-4) choose the correct answer (1–4).

HOW DO WRISTWATCHES TICK?

Keep time with the springs and gears of a mechanical watch

Before you could check your smartphone, and even before quartz batteries, a personal timepiece was a valuable commodity. There are two types of mechanical watch: a hand-wound watch and an automatic or self-winding watch.

Although the starting mechanisms are different, the movement inside is essentially the same. It all comes from the back and forth motion of the mainspring - this is a tightly coiled and precisely measured spring, wound into a perfectly weighted cog known as the balance wheel.

This wheel is able to move back and forth because it's helped by another series of cogs that transfer energy from the winding pin all the way to the balance wheel. This usually involves three cogs, and these correspond to the hour, minute and second hands on the face. When the second hand makes a complete revolution, the minute hand has moved one graduation, and so on.

When each of the cogs turns the next, the last one in the chain moves what is known as the escape wheel. This wheel has large teeth on it, shaped so that it jogs a piece called the pallet fork into motion, which then in turn moves the balance wheel. As the balance wheel swings back, the other side of the pallet fork knocks the balance wheel again, and so a back-and-forth swing motion continues, ultimately helping the watch to keep perfect time.

1. Which of the following statements are *NOT* mentioned in the text?

1) There are two types of mechanical watch.
2) The movement inside is essentially not identical.
3) The wheel shifts energy from the winding pin.
4) The pallet fork knocks the balance wheel.

2. The escape wheel has….

1) large teeth;
2) pallet fork;
3) minute hand;
4) moving chain.

3. The minute hand moves one graduation *when*…

1) the balance wheel swings back.
2) the balance wheel swings forward.
3) the second hand makes a complete revolution.
4) the hour hand makes a complete revolution.

4. A back-and-forth swinging of the balance wheel helps…

1) to keep perfect time.
2) to transfer energy.
3) to keep the balance wheel.
4) to move one of the hands.

ACTIVITY 10. GAP FILL (GRAMMAR)

🕮 I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

HOW DO INDUSTRIAL ROBOTS WORK?

Inside the factories where no one gets tired, sick or even paid

Ninety per cent of all the robots in the world **1)** _____ in factories. The availability of cheap human labour in China and the Far East hasn't slowed down

the march of machines, and sales of industrial robots are in fact growing **2) _____** in China than any where else in the world.

Robots were first put to work in 1961, **3) _____** General Motors installed Unimate. This was a 1.8-ton, die-cast robot arm that dealt **4) _____** red-hot, metal car door handles and other parts – dangerous and unpleasant work for humans. Unimate followed instructions stored on a magnetic drum (the forerunner of today's computer hard disks), and **5) _____** be reprogrammed to do other jobs. When Unimate robots took over the job of welding car bodies in 1969, the GM plant in Ohio was able to build 110 cars an hour – twice **6) _____** any factory in the world at that time.

Modern industrial robots **7) _____** evolved from using clumsy hydraulic pistons to much more precise electric motors for each joint. Sensors on each one detect an LED light shining through a disc with slots cut into it. As the slots interrupt the light beam, they send a series of pulses to the **8) _____** CPU that tells it precisely how far the arm has moved. Cameras mounted on the end of each arm use sophisticated image-processing software that **9) _____** them to identify objects, even if they are upside down or rotated on the conveyor belt, **10) _____** ultrasound proximity sensors prevent the robots from striking obstacles in their path.

Even with all this **11) _____**, industrial robots are so strong and move so quickly that it has always been dangerous for humans to share an assembly line with them. But the latest machines have joints driven by springs, which are tensioned by motors, instead of motors driving the arm joints directly. **12) _____** absorbs the force from an accidental knock, and enables the robot to react in time to avoid an injury.

1.

A lives
B live
C lived
D living

2.

A fastest
B the most fastest
C faster
D fast

3.

A where
B whose
C which
D when

4.

A with
B up
C on
D by

5.

A can
B must
C could
D may

6.

A as well as
B as fast as
C as soon as
D as far as

7.

A has
B had
C is
D have

8.
A robot's
B robots
C robot
D robots'

9.
A allow
B allowed
C allows
D allowing

10.
A where
B while
C which
D how

11.
A sophistic
B sophisticate
C sophisticated
D sophistication

12.
A those
B this
C that
D these

VOCABULARY PRACTICE

A. Fill in the correct word from the list below:

Aristotle, dropped, inconsistencies, measured, friction, acceleration, paradox, proportionately, velocities, observations.

In the absence of **1)**……, all bodies large and small fall with the same **2)**……... This law of falling bodies is a physical **3)**……..for it contradicts the conclusion a person may come to form general **4)**……... There is nothing to wonder at, for centuries ago the great philosopher **5)**……taught that heavy bodies fall **6)**……faster than lighter bodies. Later Galileo found apparent **7)**…….in Aristotle's teaching. He **8)**……..various kinds of objects from different levels of the leaning tower of Pisa and timed their fall and **9)** …….their **10)**……..

B. Fill in the correct word from the list below:

Warm, animals, enjoying, use , need, growing, food, a forest, motion, fundamental.

1)_____is everywhere: friendly and threatening, terrible and beautiful. It is **2)**_____ to our human existence. We need motion for **3)**_____, for learning, for thinking and for **4)**_____life. We **5)**_____ motion for walking through **6)**_____, for listening to its noises and for talking about all this. Like all **7)**_____, we rely on motion to get **8)**_____and to survive dangers. Like all living beings, we **9)**_____motion

to reproduce, to breathe and to digest. Like all objects, motion keeps us **10)**_____.

C. Fill in the correct word from the list below:

Melting, tree, motion, freezing, *life, another, instrument, people, cooking, such.*

The only type of change we call **1)** _____ in everyday **2)**_____is material transport, such as a person walking, a leaf falling from a **3)**_____, or a musical **4)**_____ playing. Transport is the change of position or orientation of objects, fluids included. To a large extent, the behaviour of **5)**_____also falls into this category.

6)_____category of change groups observations **7)**_____ as the dissolution of salt in water, the formation of ice by **8)**____, the rotting of wood, the **9)**_____of food, the coagulation of blood, and the **10)**_____ and alloying of metals.

D. Choose the synonym:

1) sufficiently	**a)** call
2) laziness	**b)** support
3) refer to as	**c)** enough
4) glance	**d)** unwillingness
5) maintain	**e)** take a quick look
6) view	**f)** pause
7) halt	**g)** opinion
8) evident	**h)** clear

E. Find the opposite word:

1) rest:	**a)** inertia	**b)** motion	**c)** force	**d)** weight;
2) fast:	**a)** quick	**b)** inert	**c)** slow	**d)** sufficient;
3) low:	**a)** clear	**b)** high	**c)** good	**d)** very;
4) rough:	**a)** quick	**b)** ready	**c)** smooth	**d)** low;
5) imaginary:	**a)** interesting	**b)** real	**c)** such	**d)** catching;
6) tiny:	**a)** large	**b)** small	**c)** fine	**d)** black;
7) decreasing:	**a)** falling	**b)** increasing	**c)** continuing	**d)** moving.

CHAPTER III. TEXTS IN INFORMATION TECHNOLOGY

ACTIVITY 1. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-10) using the correct answer (A-D) from the options given below.

EVERYDAY USES OF COMPUTERS

Computers are different: they are general purpose machines. By changing the program instruction, computers can **1.**_____to process information in very different ways. For example, a *word processor* program allows the computer **2.**_____text, a *spreadsheet* program enables the computer to perform calculations, a *database* program is used for searching and sorting records, and a *browser* program is used for **3.**_____pages on the Internet. Computers are therefore used in almost every type of work and are found almost **4.**_____. Computer equipment is known as *hardware* and programs and data **5.**_____called *software.*

A variety of devices can be attached to a computer. *Input devices* are used to enter data into the computer for processing. **6.**_____input device called a *magnetic ink character reader (MICR)* is used to read characters printed using magnetic ink. Magnetic ink characters are commonly found on bank cheques.

An optical input device called a *barcode reader* uses the **7.**_____of a light beam to read a sequence of printed parallel bars called a *barcode*. The bars are of **8.**_____ thickness, and each sequence of bars **9.**_____ a different number according to a standard code. Barcode labels are used to code items. Each item can be identified by a computer using a barcode reader to scan the labels. Barcodes are used in industry, shops, and supermarkets for stock control and to **10.**_____a computer to look up the price of items being purchased.

1.

A used **B** use
C be used **D** uses

2.

A to process **B** processing
C process **D** processed

3.

A looking at **B** look at
C to look at **D** to looking at

4.

A anywhere **B** everything
C everyone **D** everywhere

5.

A is **B** was
C are **D** were

6.

A A
B the
C An
D –

7.
A reflecting
B reflection
C reflect
D reflected

8.
A differ
B differential
C different
D indifferent

9.
A represent
B represents
C represented
D representing

10.
A allow
B let
C make
D do

🕮 II. Match the words (1-8) with their definitions (a-h)

1. a word processor program	**a)** is used for searching and sorting records
2. a browser program	**b)** Computer equipment
3. a database program	**c)** programs and data
4. a spreadsheet program	**d)** allows the computer to process text
5. hardware is known as	**e)** to enter data into the computer for processing
6. software is known as	**f)** enables the computer to perform calculations
7. Input devices are used	**g)** is used to read characters printed using magnetic ink
8. a magnetic ink character reader (MICR)	**h)** is used for looking at pages on the Internet

ACTIVITY 2. (GAPPED TEXT)

🕮 I. Read the following text. Choose from (A-H) the one which best fits each of (1-6) There are two choices you do not need to use.

PROGRAM VIRUSES

Program viruses are blocks of program code, that were expediently inculcated in other application programmes. On the infected programme activation the virus code inculcated in it also becomes active. This code activity leads to concealed file system modifications of hard disks and/ or in the core of other programmes. For instance, a virus code can reproduce itself in the bodies of other programmes – this process is called **1.**_____. In some time, having created enough number of copies, the program virus can start its destructive actions – erasing of the information stored at the hard disk. This process is called **2.**_____.

The most destructive viruses can cause hard disk formatting. As the process of hard disk formatting is rather long-lasting to be unnoticed by the user, in many cases program viruses stop at erasing the data only in hard-disk system sectors, that equals to the loss of file structure tables. In such case the data on the hard disk is left without any modification, but it is impossible to use until special methods are applied, as the correspondence between the disk sectors and the files is unsettled. Theoretically to rebuild the data in this case is possible, but **3.**_____of this work is extremely high.

It is considered that there is no such kind of a virus that can put out of action the computer hardware. But there are cases when the software and the hardware are connected in such a deal that program wreckage has to be cured by the hardware changing only. For instance, in many contemporary system-boards the basic system of input-output (BIOS) is kept in rewritable permanent memory devices (**4.**_____*)*. The possibility to rewrite information in flesh-memory microscheme is used by some program viruses to destroy the BIOS data. In this case, to repair your computer, you have either to change the microscheme or to reprogram it with the help of special devices called **5.**_____.

Program viruses get on your computer when programs were made to run up without being checked first; these programs may either be received from an outer holder (a floppy disk, a compact disc and so on) or from the Internet. When you simply copy the infected programmes, your computer can't be infected. According to this all the data received from the Internet must be checked for security, but if some unknown data from an unknown source has been received, you should **6.**_____. The common way of spreading Trojan programmes is an application to an electronic letter with the recommendation to take out and run a supposedly useful programme.

A. so called flesh-memory
B. destroy it without looking through
C. virus attack
D. the labour-intensiveness
E. to install it
F. reprogrammators
G. in the absence of
H. propagation

ACTIVITY 3. (MULTIPLE MATCHING)

🕮 I. Read the texts below. Match choices A-G to the texts 1-5. There are two choices you do not need to use.

THE MEANS OF ANTI-VIRUS SECURITY

There are rather many program means of anti-virus security. They give the following opportunities.

1. Creation of a hard disk image on outer holders. In case of data wreckage in hard disk system sectors, the „saved image” of the hard disk may let to be reconstructed if not the whole data, but its main part. The same means may help to prevent data loss in cases of hardware work faults or careless hard disk formatting.
2. Regular hard disks scanning in order to detect computer viruses. Such scanning is made automatically every time the computer is switched on and an outer disk is placed in the reading device. When scanning one should mind that an anti-virus programme searches viruses by comparing the codes of the computer programmes with the codes of the viruses known to it, which are collected in its data base. If the data base is out of date and a virus is new, the scanning programme won’t find it. To make its work more reliable one should regularly renew the anti-virus programme.
3. Periodical renovation is desirable to be performed once in a fortnight; it is also admissible to make it once in a quarter. For instance, we’ll point out that the destructive after-effects of virus W95.CIH. 1075 („Chernobyl”) attack that led to the information erasing on hundreds thousands of computers on April, 26, were connected not with the lack of security means, but with a long delay (more then a year) in these means renovation.
4. Control over size and other file attributes changes. As some computer viruses at the stage of their propagation change the parameters of the infected files, a control program can discover their activity and warn the user.
5. Control over hard disk applying. As the most dangerous operations, connected with the computer viruses activity are in any case aimed to modification of the data collected at a hard disk, the anti-virus programmes can control the applies to the hard disk and warn the user about the suspicious activity.

A. May be useless when a new virus appears.
B. Destroy it without looking through.
C. One of the signals is changing the file size.
D. Data collected on the hard disk is the main goal of all viruses.
E. Creating copy by using the external media can help you to save the data.
F. A regular update can save your computer.
G. Unplug the computer.

ACTIVITY 4. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6) There are two choices you do not need to use.

INFORMATION SECURITY IN INTERNET

Working in Internet one should take into consideration that the resources of the World web are as much open for every customer, as the resources of his computer system may, in some cases, be open to everyone **1.**_____.

For a private user this factor doesn't play any special role, but one should be informed about it be able to prevent actions breaking the law of those countries, **2.**_____. To such actions we refer deliberate and undeliberate attempts to break the labour-intensiveness of computer systems, attempts to break into protected systems, using and propagating of computer systems labour-intensiveness breaking programmes (computer viruses in particular).

Working with the World web one should remember **3.** _____by special software and the information both about legal and illegal actions is inevitably collected. That's why the information circulation in Internet should be treated as usual correspondence with the help of post-cards.

But even in common post correspondence besides post-cards, post envelopes are also used. The usage of the envelopes doesn't mean that partners are eager to conceal something. Their usage corresponds to a long-lasting historical tradition, **4.**_____. The need of such „envelopes" for information security also exists in Internet. Nowadays Internet is not only the means of communication and the universal enquiry system – contract and financial obligations also circulate there, so the necessity to protect them both from looking through and from falsification is obvious.

Information is a product of reciprocity between the data and the methods corresponding to it. If during the process of communication data is passed through open systems (**5.**_____), the access of unauthorized persons to it can't be denied **6**._____. According to this, security systems work with the second component of information – its methods. The principle of their work is based on abandoning the possibility of finding the appropriate method of converting data into information. One of the methods of such security is *data enciphering.*

A. whose territory the Internet servers are situated on
B. even theoretically
C. which provides a range of different services
D. who has necessary means in his possession
E. that all the actions are fixed and added to protocols
F. Internet refers to these systems
G. moral and ethic norms of communication.
H. that is known as the *Internet.*

ACTIVITY 5.

🕮 I. Read the text and choose the right option.

A *graphics package is* used for creating a rid editing graphical images or drawings. This type of program usually has a set of icons called a *toolbox* to access the most commonly used graphics tools. It allows users to perform functions, such as creating shapes, scaling them to different sizes, rotating them, and filling them with colour. Simple drawings can be created using a combination of pre-defined shapes such as squares, rectangles, triangles, and ellipses.

Multimedia is a combination of text, graphics, animation, sound, and video. A popular multimedia encyclopedia program created by the Microsoft Corporation is called *Microsoft Encarta.* The text displayed on the screen contains *hyperlinks,* i.e. words that are linked to other text. When the user clicks on a link, the linked text is displayed on the screen. Encarta also has icons for displaying maps, charts, tables, pictures, sounds, animation, videos, and interactive activities.

Computers are general purpose instruments that are controlled by programs. Present-day computers are electronic devices but the first computers were mechanical. They were replaced by electro-mechanical computers that used electrical mechanism. The first electronic computers used electronic switches in the form of vacuum tube valves. Valves were later replaced by *semiconductor transistors.* The development of integrated circuits that contained millions of transistors in one small semiconductor chip enabled the development of *microprocessors.* This allowed much smaller computers, called *microcomputers,* to be introduced. The most common type of microcomputer is small enough to sit on an office desk and is often referred to as a *desktop computer*.

1. A *graphics package can be* used for creating
- **A**. a cylinder
- **B.** a text
- **C.** a chart
- **D.** an image

2. When the user clicks on a link
- **A**. they can watch a film.
- **B.** they can listen to a music
- **C.** they can read the linked text
- **D.** they can create a new link

3. The first computers were
- **A.** electrical
- **B.** mechanical.
- **C.** electro-mechanical
- **D.** electronic

4. Electronic switches used in the first electronic computers were in the form of
- **A.**vacuum cleaners

B. semiconductor transistors
C. tubes
D. vacuum tube valves

5. The text is about
A. the origin of computers.
B. graphics and multimedia
C. modern computers
D. anti-virus security

ACTIVITY 6. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

THE INTERNET: THE WORLD WIDE WEB

The connection of networks **1.**_____the world forms the Internet which provides a range of different services, such as email, newsgroups, and file transfer. One of **2.**_____ and most popular services on the Internet is the *World Wide Web* which is commonly referred to as *the Web,* or simply as *WWW.*

A web browser program **3.**_____a graphical user interface for the Internet allowing users to view linked documents called *webpages.* **4.**_____a user clicks on a *webpages link,* or *hyperlink,* the browser fetches and displays the linked webpage. Linked webpages may be stored on different servers in different parts of the world. A set of hyperlinked webpages is known as *a website.* Websites are available for an enormous range of topics, **5.**_____ news, sports, entertainment, education, and sale of goods.

Because there are **6.**_____websites on the Web, it is often difficult to find the information you are **7.**_____. Special websites have been set up that use programs called *search engines* to search the Web for the information you need. Normally, you fill in a form on a search webpage to indicate **8.**_____ you are looking for and then click a search button to start the search engine. After **9.**_____ the Web, it displays a webpage with hyperlinks to the websites that contain the information you are looking for. When you want to return to the webpage, you only need to 10_____the appropriate bookmark.

Each webpage **11.**_____a unique web address **12.** _____known as a *uniform resource locator (URL).* Web addresses often start with *http:// www,* and each part of the web address is separated by a dot (.) or a slash (/). Http stands for *hypertext transfer protocol,* which is the standard way of communicating on the World Wide Web.

1.
A in
B throughout
C on
D along

2.

A new
B newer
C newest
D the newest

3.
A provide
B provides
C provided
D providing

4.
A Where
B Why
C When
D Which

5.
A including
B include
C included
D includes

6.
A so any
B such
C so many
D such many

7.
A looking for
B looking after
C looking at
D looking through

8.
A where
B who
C which
D what

9.
A search
B searches
C searching
D searched

10.
A click on
B click at
C click in
D click up

11.
A have
B has
C haves
D had

12.
A anytimes
B somewhere
C sometimes
D someone

ACTIVITY 7. (GAPPED TEXT)

🕮 I. Read the following text. Choose from (A-H) the one which best fits each of (1-6) There are two choices you do not need to use.

THE INTERNET: EMAIL AND NEWSGROUPS

1._____the combined network is called an *internetwork* or *internet*. The connection of networks throughout the world forms what is known as the *Internet.*

Networks all over the world are connected to the Internet **2.**_____.The routers decide which route on the Internet a particular signal should take to get to

its destination. Users often pay a monthly fee to a type of company known as an *Internet service provider* (ISP), **3.**_____. A variety of services such as email and file transfer are made available to users on the Internet. These services are controlled using a system of server computers at various locations throughout the world.

Electronic mail, **4.**_____, is one of the most popular services on the Internet. Email allows users to send electronic messages to storage areas known as *mailboxes* on server computers **5.**_____. Each user has their own email address which determines where their email message stored. Every email address has two main parts separated by an ampersand symbol, i.e. *Username @ domain name*. The domain name may be subdivided using dots.

An email message has two main parts known as the *header* and the *body* of the message. The body contains the message itself, whilst the header reveals the identity of the recipient and of the sender, the date it was sent, and the subject title of the message. Email consists of plain text but other types of computer files, such as formatted text, spreadsheets, sound files, or video files can be attached to email messages. These *email attachments* can then be opened and read **6.**_____.

A. whose territory the Internet servers are situated on
B. using electronic devices known as *routers*.
C. using an appropriate program on the recipient's computer.
D. which has come to be known as *email*
E. where they can be read by other users
F. When different network are connected together,
G. to provide them with an Internet connection
H. that is known as the *Internet.*

ACTIVITY 8. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-8) using the correct answer (A-D) from the options given below.

WHEN A COMPUTER ERROR IS A FATAL MISTAKE

Life without computers has become **1.**_____. They are designed to look after so many boring but essential things that we have become depended **2.**_____them. But **3.**___ the demands placed on computers grow, so does the number of incidents involving computer errors. It is only a matter of **4.**_____before a computer- made catastrophe occurs. As early as 1889, a word entered the language that was to become all too familiar to computer scientists: a „bug", meaning a mistake. For decades bugs and „debugging" were taken to be part of every computer engineer's **5.** ___ .

Of course, more often than not errors are **6.**___ annoying, but sometimes they can come close to causing tragedies. On the Picadilly line in London's Underground a driver who was going south along a track got confused while

7._____ his empty train through a cross-over point. He started to head north straight at a south bound train full of people. The computerized signaling system **8.** _____to warn him of impending disaster and it was only his quick human reactions that prevented a crash.

1.
A elementary **B** tireless
C unimaginable **D** trivial

2.
A over **B** on
C with **D** in

3.
A however **B** in the meantime
C no sooner **D** as

4.
A fact **B** time
C necessity **D** place

5.
A job **B** tragedy
C necessity **D** action

6.
A not **B** just
C not only **D** absolutely

7.
A move **B** to move
C moving **D** moved

8.
A managed **B** failed
C signaled **D** succeeded

II. For questions (1-5) choose the correct answer (A, B, C or D).

1. Which of the following is not true?
A) Try as you might, you can hardly manage without computers in modern world.
B) No matter how boring computers might be, their demands grow.
C) Sooner or later, the number of incidents involving computer errors is expected to increase.
D) In the course of time computers are supposed to do more and more demanding job.

2. In the faraway year of 1889 the word “bug”:
A) appeared in the language.
B) was used by mistake.
C) and “computer” were synonyms to computer scientists and entered their language and life.

D) familiarized computer scientists with “de-bugging”.

3. What kept the catastrophe in the subway from happening?

A) The driver’s prompt actions.

B) The computerized signaling actions.

C) The fire brigade.

D) Signals of the driver.

4. What title could you give to the story?

A) When a computer error is a fatal mistake.

B) Growing demands on computer errors.

C) Annoying bugs.

D) De-bugging in London Underground.

5. The word impending means:

A) crashed.

B) reasonable.

C) looking forward.

D) approaching, going to happen.

ACTIVITY 9. (MULTIPLE MATCHING)

🕮 I. Read the text below. Match choices (A-H) to (1-5). There are three choices you do not need to use.

WHY CLOUD?

Why should you use a cloud computing solution when having your own in-house IT setup is the more traditional way? What is it that makes using a cloud provider more sense in today's interconnected world?

1. Cloud based solutions are incredibly elastic in their design They can grow as your business needs increase and they can be scaled back should your requirement lessen Its this level of operational ability, or elasticity, that makes a cloud solution perfect for the business and consumer IT model

2. Although there are incidents of cloud hacking, keeping data in the cloud is regarded as being far more secure than having the data available locally. Lost laptops, USB flash drives hard drives recovered from old computers can all be a huge security risk, with each containing data, bank details and images

3. As long as a worker or individual has access to the Internet, then they are able to access the cloud solution behind the company. This means you can utilize expertise from around the world, without the expense of relocation. Home users can also upload images and documents from any Internet capable device

4. When you have umpteen users all working off a single document, you eventually come across conflicting copies and formats By using a cloud model, document control is kept in line by all users working from a single, stored document source. In addition, the digital storage cost of multiple documents emailed to and from users is drastically cut down

5. Cloud computing is a pay-as- you-go model in that you simply invest in what you need at that part.cular point. Using this in conjunction with the elasticity of a cloud means that you pay for more services or storage as you and your business grows.

A) Automatic updates
B) Security
C) Flexibility
D) Access from anywhere
E) Reduced costs
F) Document control
G) Disaster recovery
H) Collaboration

ACTIVITY 10. USE OF ENGLISH. GAP FILL (GRAMMAR)

I. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

WHAT IS COMPUTING?

The way we use technology **1)**_____. It's an evolution of how and where we access our private, personal and work related data. From the earliest days of the home computer, accessing data and entertainment from cassettes, to the rise of the Internet and terabytes of storage, technology **2)**_____the way we interact with the world around us.

One **3)**_____form of this technological evolution is the cloud. The cloud is a term **4)**_____often without knowing exactly what "the cloud" is, what it does, how it **5)**_____and what it can offer both the home and business user. The cloud offers many great benefits for those **6)**_____use it. Storage, email, development collaboration, sharing, streaming, the list goes on. We look **7)** _____better ways for you **8)** _____the cloud into your business or lifestyle, and even how you can **9)** _____about creating your own personal cloud.

The future of work and entertainment **10)** _____in the cloud.

1.
A is changing **B** change
C are changing **D** changed

2.
A have revolutionized **B** revolutionized
C has revolutionizing **D** has revolutionized

3.
A particulars **B** particularity
C particularly **D** particular

4.
A use **B**uses
C used **D** is used'

5.

A work **B** worked
C works **D** working

6.

A who **B** why
C whose **D** where

7.

A on **B** to
C at **D** after

8.

A implement **B** to implement
C implemented **D** to implementing

9.

A to go **B** went
C go **D** gone

10.

A lie **B** to lie
C lies **D** lay

ACTIVITY 11. (GAPPED TEXT)

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6). There are two choices you do not need to use.

HISTORY OF CLOUD

The considered and accepted evolution of the cloud, from concept to daily use starts as far back as the 1950s. According to popular myth. John McCarthy, the computer scientist **1)_____,** dreamed up the concept of computing time sharing In those days computing **2)_____**, so McCarthy came up with the idea of renting time-shared computing resources to companies **3)_____.** This is regarded as the beginning of the cloud concept.

IBM developed its mainframe Virtual Machine Facility/370, system in 1972. Using the Hercules Emulator program, scientists were able to access the VM/370 in multiple virtual machine states all from a single system.

J.C.R Licklider developed ARPANET (Advanced Research Projects Agency Network), a network that eventually became **4)_____.** Using McCarthy's initial concept Licklider s vision was "for everyone on the globe to be interconnected and accessing programs and data at any site, from anywhere"

Throughout the 1980s the home computer boom and improved communications technology saw consumers and business users accessing remote resources via 300 bits-per-second modems.

The Internet grew exponentially throughout the 90s. As a result, the first instance of the term «cloud computing» was used **5) _____**It was in a 1996 presentation entitled Internet Solution Division Strategy for Cloud Computing'.

In 1999 the cloud computing concept began in earnest, used the now maturing Internet to offer shared sales information for a company, along with collaboration, storage and reporting through a web-based portal.

Google's growth and domination of the Internet saw the company release its Google Apps cloud-based services in 2006. Later, in 2011, Apple announced its own cloud storage solution, Apple Cloud and in 2012 Google Drive was launched, bringing together all the cloud definitions under a single service.

Another major milestone in the cloud's history was the launch of Amazon Web Services in 2002. It was easily expanded, offered storage, computation and virtualization

The use of more powerful mobile devices, better net-works and faster access to the Internet has resulted **6)_____.** It is estimated that at the end of 2016, money spent on cloud services was in the region of $1.4 trillion and that growth isn't looking to slow down anytime soon.

A) who couldn't afford the technology.
B) by a group of Compaq Computer engineers.
C) who coined the term 'artificial intelligence.'
D) cost millions of dollars.
E) the basis of the Internet.
F) this service provided.
G) in a huge cloud boom in recent years.
H) while an excellent benefit.

ACTIVITY 12.

🕮 I. Read the following text and give the appropriate headline.

***

Despite the technology being relatively new, the name Bluetooth actually has medieval origins. It was chosen by the largely Scandinavian team of engineers that created the wireless communications technology back in the 1990s, and is the English translation of the name of a Viking king.

When looking for a name that signified their new invention’s ability to connect PCs and cellular phones, the team thought of King Harald Blatand of Denmark, who was famous for uniting parts of Denmark and Norway with non-violent negotiations. The name’s origins are also evident in the Bluetooth symbol, as it is king Blatand’s initials written in Norse runes.

🕮 II. Give the synonyms to the words.

✓ medieval	mobile
✓ origin	emblem
✓ team	old-fashioned
✓ wireless	obvious
✓ ability	outstanding

✓ cellular	joint / link
✓ famous	without cable
✓ unite	capacity
✓ evident	root
✓ symbol	company

ACTIVITY 13.

I. Read the following text and give the appropriate headline.

***

When you delete a file on a computer you probably think it's gone forever, but it's not. Deleting a file just removes the label that tells the computer the file is there. All the data that used to be part of the file will still be able to be found somewhere on your hard disk.

It's a bit like taking the cover off a book, but leaving all the pages behind – the book may be gone, but the information is ultimately still there. The file only really gets erased when the computer eventually stores something new where the old file used to be on the disk.

II. Give the synonyms to the words.

✓ delete	erase
✓ probably	perhaps
✓ label	tag
✓ cover	coat
✓ ultimately	yet
✓ remove	transfer
✓ eventually	finally
✓ old	ancient
✓ forever	always

ACTIVITY 14.

I. Read the following text and give the appropriate headline.

***

1) The internet is very much influenced by what is happening outside of the web. It's people that build websites and people always want information, people always need to go shopping, people will always need to go to the bank, people will always want to stay in contact – the web provides the ideal platform to replace more traditional services.

2) A well-conceived website is not only aesthetically pleasing, but also works under the hood as well. Soul Media (www. soulmedia.com.au) is a Melbourne-

based digital agency that has put together a striking and well-constructed site that demonstrates the traits of good design.

3) This site itself uses the popular one-page scrolling design. This negates the need to link to other pages and wait for them to load. It is simply a matter of scrolling down the page or using the fixed position menu to jump, in an elegant manner, to the requested section. The fixed nature of the navigation system means that it is always visible and ready to use.

4) Facebook is a huge social networking site and epitomises what people like to do on the web – stay in contact and tell others what they are up to.

5) YouTube allows web users to stream and watch videos from a vast library of variety. Sitting along the same lines are services such as Netflix and LoveFilm, which take the online streaming and viewing experience to a new level. Google, a service that nearly everyone in the world has heard of, presents a different tool for the web, but search engines are keys to finding websites.

6) Blog sites can be bland and boring. But there are hundreds, if not thousands, of blogs that have stepped outside the standard template to bring a splash of creativity and originality. Eltoria (www. eltoria.com) is an award-winning blog that is run by Simone Partner a 23 year old law graduate from the University of Reading who lives near Bath. The purpose of the blog is to express Simone's interests and talk about some of the amazing brands she has worked with..

🕮 II. Read the texts above. Match choices A-H to the texts 1-6. There are two choices you do not need to use.

A It gives possibility to stream.
B What makes a good site?
C What makes a good blog?
D This website is fast and doesn't need any connections.
E This site demonstrates what websites are used for.
F This blog is run by an Englishman.
G What are websites used for.
H Is a good designed Australian website.

ACTIVITY 15.

🕮 I. Read and retell the text

WHAT MAKES A GOOD BLOG OR SOCIAL WEBSITE?

Blog sites can be bland and boring. But there **1)**_____hundreds, if not thousands, of blogs that have stepped outside the standard template to bring a splash of **2)** _____and originality. Eltoria (www. eltoria.com) is an award-winning blog that is run **3)** _____Simone Partner a **4)**_____law graduate from the University of Reading **5)** _____lives near Bath. The purpose of the blog is **6)** _____Simone's interests and talk about some of the amazing brands she has worked with.

The blog is a simple **7)** _____of posts, but the combination of fonts, typography, images, layout and effects make the blog a compelling, imaginative and engaging presence. The layout **8)** _____an immediate impression. The big image slider uses well shot lifestyle photography to add a **9)** _____. The social media channels **10)** _____prominent placing, but it's past the home page that the site reveals its true self. The gorgeous use of fonts means that the blog instantly gains class and **11)** _____. The imagery complements perfectly and the inclusion of author pictures adds **12)** _____personality to the pages.

🕮 II. Read the text and complete the gaps (1-12) using the correct answer (A-D) from the options given below.

1.
A is **B** are
C was **D** were

2.
A creative **B** creativity
C create **D** creating

3.
A on **B** at
C in **D** by

4.
A 23 year old **B** 23 year olds
C 23 years old **D** 23 year's old

5.
A which **B** whose
C who **D** where

6.
A express **B** expresses
C to express **D** expressed

7.
A select **B** selection
C selected **D** selecting

8.
A make **B** to make
C makes **D** made

9.
A person **B** personality t
C personal **D** personalities

10.
A given **B** give
C is given **D** are given

11.
A sophisticate **B** sophisticating
C sophisticated **D** sophistication

12.

A more **B** few
C much **D** a few

📖 III. Give the synonyms to the words.

✓ bland	mix / combining
✓ template	effect
✓ creativity	choice
✓ brand	uninteresting
✓ selection	notable
✓ combination	detect / show
✓ impression	pattern / model / sample / example
✓ prominent	originality
✓ reveal	brand / sort / type

ACTIVITY 16.

📖 I. Read the following text. Choose from (A-H) the one which best fits each of (1-6). There are two choices you do not need to use.

WHAT MAKES A GOOD SITE?

A well-conceived website is not only aesthetically pleasing, **1)_____**. Soul Media (www. soulmedia.com.au) is a Melbourne-based digital agency that has put together a striking and well-constructed site **2)_____**. The home page makes an immediate impact with a big, bold image and relays the company message without too many distractions. The main image is a background image **3)_____**, ensuring that it works with all screen sizes. The site is also 'responsive', **4) _____**and restyles to fit. This ensures that a site will work for smartphones, tablets and desktops.

The site itself uses the popular one-page scrolling design. This negates the need to link to other pages and wait for them to load. It is simply a matter of scrolling down the page or using the fixed position menu to jump, **5) _____**, to the requested section. The fixed nature of the navigation system means that it is always **6)_____**. Alongside the HTML there is good use of web fonts and CSS3 techniques – text shadows and box shadows are all here in abundance.

A. that scales with the browser window.
B. keeping data in the cloud.
C. in an elegant manner.
D. that demonstrates the traits of good design.
E. using this in conjunction.
F. but also works under the hood as well.
G. visible and ready to use
H. which means that it responds to the size of a screen

II. Give the synonyms to the words.

✓ digital	society / party
✓ immediate	interruption
✓ impact	numeral
✓ company	quick / fast
✓ distraction	deny / refute
✓ negate	delicate
✓ elegant	influence

ACTIVITY 17.

I. Read, translate and retell the text.

AN INTRODUCTION TO BLOGS AND SOCIAL MEDIA

Blogs and social media websites are now an integral part of the online experience for many people. WordPress and Twitter are synonymous with web publishing and micro-blogging. WordPress has become the most popular web publishing platform because it is freely available, websites using it can be either self-hosted or hosted on wordpress.com, arid it has a whole selection of supporting tools and themes.

WordPress is the power behind millions of websites, it is easy to install, even for newcomers, and easy to customise and navigate around. There are thousands of themes on the market, which can instantly give a website a completely new appearance with a single dick. There is also a vast array of plugins that allow users to add special widgets that perform specific tasks, for example adding polls, image sliders, tweets, featured content and so on. The beauty of blogging platforms such as WordPress is that they provide a platform for users to get their opinions, thoughts and personality online. While WordPress is the most popular web publishing platform it is by no means the only one out there. Joomla and Drupal are similar content management systems, but at the other end of the scale there are easy to set up, hosted platforms such as Tumblr and Flavors.me.

More instant web publishing is provided by the social media/micro-blogging platform Twitter. This allows users to communicate with short, concise, 140-character or less, messages (tweets). Messages are sent to all those who choose to follow you but more importantly the addition of a hashtag (#) makes a tweet subject specific. This immediately expands the reader base to include thousands more readers of a tweet. As a promotional tool Twitter is key on the web. Web sites typically include social media links encouraging visitors to follow. Conversely, it provides the perfect platform to create interest amongst followers and beyond. A well-constructed tweet will engage readers and more importantly drive traffic to a website.

II. Give the synonyms to the words.

✓ integral	to socialize / connect
✓ experience	complete / ideal

✓ support	analogical / parallel
✓ to customize	necessary / significant
✓ appearance	to supply
✓ to provide	practice / knowledge
✓ similar	help / assistance
✓ to communicate	to modify
✓ perfect	look / front

III. Chose the appropriate preposition. (for, by, to, on, with, of).

1) There are thousands of themes ____the market
2) There is a lot of plugins that allow users _____add special widgets.
3) More instant web publishing is provided _____the social media/micro-blogging platform Twitter.
4) Messages are sent _____all those who choose to follow you.
5) Social media websites are now an integral part of the online experience __ many people.
6) Twitter is synonymous _____web publishing.
7) It has a whole selection _____supporting tools and themes.

ACTIVITY 18.

I. Read the following text. Choose from (A-H) the one which best fits each of (1-6). There are two choices you do not need to use.

WHO INVENTED *HTML*?

In the Eighties and Nineties the internet already existed, **1)** _____ between computers and content. Each server had different software, **2)**_____and methods for sharing data. Tim Berners-Lee was working in a computer services section at CERN – the European Laboratory for Particle Physics in Geneva, Switzerland. Tim realised that **3)** _____to have a simple method for sharing information remotely, and rather than invent a completely new system from scratch, he developed a markup language based on the popular SGML format. He developed a straightforward protocol – HTTP (which stands for HyperText Transfer Protocol) – for retrieving other documents' text via hypertext links. The text format for HTTP was named HTML, for HyperText Markup Language. **4)** _____Tim encouraged others to build upon his ideas and to design further software for displaying HTML, and for setting up their own HTML documents ready for access. This was the birth of the web **5)** _____, and led to an explosion in use of the internet. HTML itself has been further developed over time, and we're now **6)** _____– version 5.

A. by keeping it simple.
B. keeping data in the cloud.
C. it would be useful.
D. that demonstrates the traits of good design.
E. as we know it today

F. but didn't have any simple way of navigating
G. up to its latest version
H. different protocols

🕮 II. Give the synonyms to the words.

✓ content	origin, source
✓ section	meaning, ,matter
✓ simple	to cultivate
✓ birth	easy / ordinary
✓ explosion	part / division
✓ to develop	outbreak

ACTIVITY 19.

🕮 I. Read and retell the text. Put the paragraphs in the write order.

HTML & MOBILE BROWSING

A. Typically, a mobile-optimised website will be presented in one of two ways: either it will be the full website presented to render nicely on the smaller screen size that you find on phones and tablets, or it will be a special version of the website that doesn't contain the same information as the full website.

B. The only real difference between a page optimised for a mobile device and one orientated towards a desktop computer is the CSS styles that have been applied. The content, and often the structure, of the page remains plain HTML and there's no need to learn special skills or additional languages to be able to create sites that on these devices. That's not to say that you shouldn't consider how your users are accessing the web page and what information they might need!

C. When you access the web from your mobile phone or tablet, you'll often notice special pages that have been formatted especially for these devices, rather than the full desktop version of a website.

D. This latter approach supposes that a mobile visitor to your site is likely to be more goal-orientated than a desktop visitor, and aims to present the key information quickly, such as ‘how to find us’, or ‘our contact details’.

E. You might have wondered whether these pages use a special language especially for mobile devices? The good news is that, just like the rest of the web, they use standard HTML.

🕮 II. Give the synonyms to the words.

✓ access	course / progress
✓ often	goal / purpose
✓ device	extra / supplementary
✓ good	fast /speedily
✓ standard	pass
✓ special	frequently
✓ additional	instrument / appliance

✓ way	nice
✓ aim	guideline
✓ quickly	particular /specific

СПИСОК РЕКОМЕНДОВАНОЇ ЛІТЕРАТУРИ ДЛЯ САМОСТІЙНОЇ РОБОТИ

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APPENDIXES

IRREGULAR VERBS

I ФОРМА INFINITIVE	II ФОРМА PAST SIMPLE	III ФОРМА PAST PARTICIPLE	ПЕРЕКЛАД TRANSLATION
1	2	3	4
arise	arose	arisen	підійматися
be	was, were	been	бути
bear	bore	born	народжувати
become	became	become	становитися, ставати
begin	began	begun	починати (ся)
bend	bent	bent	гнути
bind	bound	bound	зв'язувати
bite	bit	bitten (bit)	кусати (ся)
blow	blew	blown	дути
break	broke	broken	ламати (ся)
breed	bred	bred	виховувати
bring	brought	brought	приносити
build	built	built	будувати
burn	burnt	burnt	горіти, палити
buy	bought	bought	купувати
catch	caught	caught	ловити, схоплювати
choose	chose	chosen	вибирати, добирати
come	came	come	приходити
cost	cost	cost	коштувати
cut	cut	cut	різати
dig	dug	dug	рити, копати
do	did	done	робити
draw	drew	drawn	тягти; малювати
dream	dreamt	dreamt	мріяти, бачити уві сні
drink	drank	drunk	пити
drive	drove	driven	вести, гнати
eat	ate	eaten	їсти
fall	fell	fallen	падати
feed	fed	fed	годувати
fell	felt	felt	почувати (себе)
fight	fought	fought	боротися, битися
find	found	found	знаходити
fly	flew	flown	літати
forget	forgot	forgotten	забувати
give	gave	given	давати
go	went	gone	іти, ходити
grow	grew	grown	рости, ставати
hang	hung	hung	вішати, висіти
have	had	had	мати
hear	heard	heard	чути
hide	hid	hidden	ховати
hold	held	held	тримати
keep	kept	kept	тримати, зберігати

I ФОРМА INFINITIVE	II ФОРМА PAST SIMPLE	III ФОРМА PAST PARTICIPLE	ПЕРЕКЛАД TRANSLATION
1	2	3	4
know	knew	known	знати
lead	led	led	вести
learn	learnt	learnt	вчити (ся)
leave	left	left	залишати
lend	lent	lent	позичати
let	let	let	дозволяти, здавати в найми
light	lit	lit	запалювати, засвічувати
lose	lost	lost	губити, втрачати
make	made	made	робити
mean	meant	meant	означати
meet	met	met	зустрічати
put	put	put	класти
read	read	read	читати
ride	rode	ridden	їздити верхи
rise	rose	risen	підніматися
run	ran	run	бігти
say	said	said	казати
see	saw	seen	бачити
sell	sold	sold	продавати
send	sent	sent	посилати
set	set	set	заходити (про сонце)
shake	shook	shaken	трясти
shine	shone	shone	сяяти, блищати
shoot	shot	shot	стріляти
shut	shut	shut	закривати, зачиняти
sing	sang	sung	співати
sink	sank	sunk	поринати
sit	sat	sat	сидіти
sleep	slept	slept	спати
smell	smelt	smelt	нюхати, пахнути
speak	spoke	spoken	говорити, розмовляти
spend	spent	spent	витрачати
spoil	spoilt	spoilt	псувати
spread	spread	spread	поширювати
spring	sprang	sprung	стрибати
stand	stood	stood	стояти
steal	stole	stolen	красти
stick	stuck	stuck	приклеювати
sting	stung	stung	жалити
stride	strode	stridden	крокувати
strike	struck	struck	бити;страйкувати
strive	strove	striven	старатися
swear	swore	sworn	присягати
sweep	swept	swept	мести, підмітати
swim	swam	swum	плавати
take	took	taken	брати

I ФОРМА	II ФОРМА	III ФОРМА	ПЕРЕКЛАД
INFINITIVE	PAST SIMPLE	PAST PARTICIPLE	TRANSLATION
1	2	3	4
teach	taught	taught	вчити
tear	tore	torn	рвати
tell	told	told	розказати
think	thought	thought	думати
throw	threw	thrown	кидати
thrust	thrust	thrust	штовхати
understand	understood	understood	розуміти
upset	upset	upset	перекидати; розстроювати
wake	woke	woken	прокидатися
wear	wore	worn	носити
weep	wept	wept	плакати
win	won	won	перемагати
wind	wound	wound	заводити
withdraw	withdrew	withdrawn	брати назад, відкликати
write	wrote	written	писати

VOCABULARY FOR INFORMATION TECHNOLOGY PROFESSIONALS

✓ to back up (backup)	створити резервну копію
✓ to boot	завантажувати
✓ to burn	записувати на оптичний диск
✓ to create	створювати
✓ to compress	стискати
✓ to connect	з’єднувати, підключатися
✓ to copy	копіювати
✓ to cut	вирізати в буфер обміну
✓ to debug	налагоджувати
✓ to decrypt	розшифровувати
✓ to delete	видаляти
✓ to deploy	розвертати (наприклад, додаток на серверах)
✓ to develop	розробляти
✓ to disable	відключати, деактивувати
✓ to disconnect	роз’єднувати, відключатися
✓ to download	завантажувати
✓ to eject	витягувати (пристрій)
✓ to enable	включати
✓ to encrypt	шифрувати
✓ to execute	виконувати
✓ to format	форматувати
✓ to implement	впроваджувати, реалізовувати
✓ to initialize	приводити в початковий стан
✓ to install	встановлювати
✓ to integrate	інтегрувати
✓ to link to	посилатися на що-небудь
✓ to load	завантажувати
✓ to paste	вставляти з буфера обміну
✓ to plug in	включати
✓ to press (a button)	натискати (кнопку)
✓ to read	зчитувати
✓ to reboot	перезавантажувати
✓ to restore	відновлювати
✓ to save	зберігати
✓ to scroll up/down	прокручувати вгору / вниз
✓ to sort	сортувати
✓ to switch on/off	включати/вимикати
✓ to uninstall	видаляти
✓ to update	оновлювати
✓ to upgrade	покращувати
✓ to upload	завантажувати
✓ to verify	перевіряти

🖫 HARDWARE – АПАРАТНЕ ЗАБЕЗПЕЧЕННЯ:	
✓ a bus	шина
✓ a cable	кабель
✓ a central processing unit (CPU)	центральний процесор
✓ a computer case	корпус системного блоку
✓ a device	пристрій
✓ a fan	вентилятор охолодження, кулер
✓ a graphics card (graphics adapter)	відеокарта (відеоадаптер)
✓ a graphics processing unit (GPU)	графічний процесор
✓ a hard disk drive (HDD)	жорсткий диск
✓ a laptop	ноутбук, портативний комп'ютер
✓ a light-emitting diode (LED)	світлодіод
✓ a motherboard (mainboard)	материнська плата
✓ a network card	мережевий адаптер (мережева карта)
✓ a port	роз’єм, порт
✓ a power supply unit (PSU)	блок живлення
✓ a solid-state drive (SSD)	твердотільний накопичувач
✓ a sound card (audio card)	звукова карта
✓ a storage device	запам'ятовуючий пристрій , накопичувач
✓ a touch screen	сенсорний екран
✓ air cooling	повітряне охолодження
✓ an expansion card	карта (плата) розширення
✓ an optical disk drive	оптичний привід
✓ an uninterruptible power source (UPS)	джерело безперебійного живлення
✓ random-access memory (RAM)	оперативна пам'ять
✓ read-only memory (ROM)	постійний запам'ятовуючий пристрій
✓ removable media	знімні носії інформації
✓ water cooling	водяне охолодження
✓ output devices:	пристрої виведення:
– a monitor	– монітор
– a printer	– принтер
– a speaker	– колонка (акустична)
– headphones	– навушники
✓ input devices:	пристрої введення:
– a keyboard	– клавіатура
– a mouse	– миша
– a scanner	– сканер
– a digital camera	– цифрова камера
– a joystick	– джойстик
🖫 SOFTWARE – ПРОГРАМНЕ ЗАБЕЗПЕЧЕННЯ	
✓ a compiler	компілятор
✓ a database	база данных
✓ a debugger	відладчик

✓ a desktop application/app	додаток для настільного комп'ютера
✓ a device driver	драйвер пристрою
✓ a graphical user interface (GUI)	графічний користувальницький інтерфейс
✓ a kernel	ядро (наприклад, операційної системи)
✓ a mobile application/app	мобільний додаток
✓ a plug-in (plugin)	плагін, розширення
✓ a programming language	мова програмування
✓ a query	запит
✓ a scroll bar	полоса прокрутки
✓ a snapshot	знімок стану системи
✓ a spreadsheet	електронна таблиця
✓ a status bar	рядок стану
✓ a template	шаблон
✓ a version control system (VCS)	система контролю версії
✓ a web application/app	веб-додаток
✓ a word processor	текстовий процесор
✓ a text editor	текстовий редактор
✓ a utility	утиліта (службова програма)
✓ acceptance testing	приймальне тестування
✓ agile methodology	гнучка методологія розробки
✓ an algorithm	алгоритм
✓ an array	масив
✓ an encoding	кодування
✓ an enterprise application	корпоративний додаток
✓ an executable (file)	файл, що виконується
✓ an interpreter	інтерпретатор
✓ an operating system (OS)	операційна система
✓ application software	прикладне програмне забезпечення
✓ aspect-oriented programming (AOP)	аспектно-орієнтоване програмування
✓ binary data	бінарні дані
✓ commercial software	платне програмне забезпечення
✓ data	дані, інформація
✓ data processing	обробка даних
✓ extreme programming	екстремальне програмування
✓ firmware	прошивка, мікропрограма
✓ freeware	безкоштовне програмне забезпечення
✓ incremental development	інкрементна модель розробки
✓ integrated development environment (IDE)	інтегроване середовище розробки
✓ iterative development	ітеративна модель розробки
✓ malicious software (malware)	шкідливе програмне забезпечення
✓ object-oriented programming (OOP)	об'єктно-орієнтоване програмування
✓ open source software	програмне забезпечення з відкритим вихідним кодом

✓ prototyping	створення прототипу, прототипування
✓ rapid application development (RAD)	швидка розробка додатків (методологія)
✓ regression testing	регресійне тестування
✓ runtime (runtime environment)	середовище виконання коду
✓ server software	серверне програмне забезпечення
✓ spiral development	спіральна модель розробки
✓ spyware	програма-шпигун
✓ system software	системне програмне забезпечення
✓ unit testing	модульне тестування
✓ waterfall model	каскадна модель розробки
INTERNET – ІНТЕРНЕТ:	
✓ a bookmark	закладка (в браузері)
✓ a bridge	мост
✓ a browser	браузер, оглядач
✓ a domain	домен
✓ a firewall	брандмауер, міжмережевий екран
✓ a gateway	шлюз
✓ a hyperlink	гіперпосилання
✓ a node	вузол мережі
✓ a packet	пакет
✓ a patch cord	комутаційний кабель, патч-корд
✓ a router	маршрутизатор, роутер
✓ a search engine	Пошукова система
✓ a subdomain	піддомен, субдомен
✓ a switch	комутатор, світч
✓ a website	веб-сайт, веб-вузол
✓ a wireless network	бездротова мережа
✓ bandwidth	пропускна здатність (каналу передачі даних)
✓ broadband	широкосмуговий доступ в Інтернет
✓ client-server architecture	клієнт-серверна архітектура
✓ cloud computing	хмарні обчислення
✓ cloud storage	хмарне сховище даних
✓ dynamic host configuration protocol (DHCP)	протокол динамічної настройки вузла
✓ domain name system (DNS)	система доменних імен
✓ instant messaging (IM)	обмін миттєвими повідомленнями
✓ Internet service provider (ISP)	інтернет-провайдер
✓ local area network (LAN)	локальна мережа
✓ latency	затримка, період очікування
✓ media access control (MAC) address	апаратна адресу, MAC-адреса
✓ peer-to-peer (P2P)	однорангова мережа, пірінгова мережу
✓ twisted pair	звита пара

✓ voice over IP (VoIP)	голосовий зв'язок через Інтернет,
✓ wide area network (WAN)	глобальна мережа, широкомасштабна мережа

APPENDIX SIGNS USED IN MATHEMATICS

- ✓ + – plus
- ✓ **-** – minus
- ✓ X times; multiplied by
- ✓ : divided by; the ratio of... to... = sign of equality; equals, is equal to
- ✓ *Examples: a–b a* equals *b, a* is equal to *b*
- ✓ 2x3=6 – twice three is six
- ✓ 4x5=20 – four multiplied by five are (make) twenty
- ✓ 15 : 5=3 – fifteen divided by five is (equals) three
- ✓ 3 : 6=2 : 4 – three is to six as two to four
- ✓ 3/8 – three eighths
- ✓ 0.3 – three tenths; nought point three
- ✓ 0.024 – nought point nought two four % per cent
- ✓ 25 % – twenty five per cent
- ✓ ( ) – parentheses
- ✓ [ ] – brackets
- ✓ { } – braces
- ✓ ∞ – infinity
- ✓ < – is less than
- ✓ > – is greater than
- ✓ ≤ – is less than or equal to
- ✓ ≥ – is greater than or equal to
- ✓ x*;1/x;* x^2; x^3; x^4; x^{-1}; x^n *eks*; one over *eks; eks* squarred; *eks* cubed; eks to the fourth power; eks to the minus one; eks to the en
- ✓ *y=f(x) wai* is a function of *eks*

SHORT MATHEMATICS DICTIONARY

- ✓ **absolute value** – The numerical value of a number, regardless of the sign of the number.
- ✓ **acute angle** – An angle less than 90° and more than 0°.
- ✓ **acute triangle** – A triangle having all acute angles.
- ✓ **amount** – The whole; the total; quantity.
- ✓ **angle** – A figure formed when two straight lines intersect at a point.
- ✓ **approximate number** – A number that is not exact but whose accuracy is sufficient **for** the purpose desired.
- ✓ **arc** – Any part or a section of a circumference of a circle.
- ✓ **area** – The number of square units contained in the surface of a plane figure.
- ✓ **bar graph** – A graph made up of parallel bars whose lengths represent given quantities drawn to scale.
- ✓ **base** (of a geometric configuration) – A line or surface upon which a plane or solid figure rests.

- ✓ **bisect** – To cut into two equal parts, to divide in half.
- ✓ **circle** – A closed plane curve all points of which are the same distance (called the radius) from a point within (called the centre).
- ✓ **circle graph** – A graph in the form of a circle in which the angles (parts) indicate relations to each other and to the whole.
- ✓ **circumference** – The curved line bounding a circle; the length or distance around a circle.
- ✓ **coefficient** – A number written in front of an algebraic expression.
- ✓ **common denominator** – A number into which all the given denominators divide evenly.
- ✓ **compasses or compass** – An instrument for drawing circles and arcs.
- ✓ **cone** – A solid figure having a circular base and curved surface which comes to a point at the vertex.
- ✓ **congruent triangles** – Triangles that have the same size and shape and can be made to coincide.
- ✓ **consecutive numbers** – Numbers that follow one another, such as 1, 2, 3, 4, etc.
- ✓ **corresponding parts** – Angles or sides of triangles which are placed in the figure in the same positions.
- ✓ **cube** – A rectangular solid with 6 equal square faces or, the product obtained by multiplying a number by itself three times.
- ✓ **cylinder** – A stolid figure with bases made of two equal circles and with curved sides.
- ✓ **decagon** – A polygon having ten sides and ten angles.
- ✓ **decimal fractions** – A part of a whole expressed by using a decimal point.
- ✓ **degree** – A unit used in measuring angles. 360°=one complete rotation.
- ✓ **diameter** – A straight line drawn through the centre of a circle and dividing the circle into two equal parts.
- ✓ **digit** – Any one of the ten numbers from 0 to 9.
- ✓ **dimension** – A linear measurement such as the length, width, height of a figure.
- ✓ **equation** – A statement showing the equality of two quantities.
- ✓ **equivalent fractions** – Fractions having different forms but equal values.
- ✓ **evaluate** – To determine the value of an unknown letter in a formula; to find the value of an algebraic expression by substituting in the arithmetic values of the literal quantities.
- ✓ **exponent** – The; small number or letter written slightly above and to the right of a number or letter to indicate how many times the number is to be multiplied by itself.
- ✓ **factor** – One of two or more numbers which when multiplied together give a certain product.
- ✓ **formula** – A statement of a general rule expressed by means of letters and numbers.
- ✓ **graph** – A representation of relationships by means of lines, bars, circles or symbols.

- ✓ **height** – The distance from the top to the base of an object.
- ✓ **hemisphere** – One half of a sphere.
- ✓ **hexagon** – A plane figure having six sides and six angles.
- ✓ **hypotenuse** – The side opposite the right angle in a right triangle.
- ✓ **isosceles triangle** – A triangle having two equal sides.
- ✓ **like terms** – The terms of an algebraic expression containing the same letter;.
- ✓ **lowest terms** – When both the numerator and denominator of a fraction are reduced as far as possible.
- ✓ **maximum** – The greatest value of a quantity.
- ✓ **metric system** – A system of weights and measures based on the decimal system.
- ✓ **minimum** – The smallest value of a quantity.
- ✓ **monomial** – An algebraic expression consisting of a single term.
- ✓ **negative number** – A number whose value is less than zero and which is preceded by minus sign.
- ✓ **obtuse angle** – An angle containing more than 90° but less than 180°.
- ✓ **obtuse triangle** – A triangle containing an obtuse angle.
- ✓ **octagon** – A plane figure containing 8 sides and 8 angles.
- ✓ **parallel lines** – Lines that extend in the same direction and are the same distance apart no matter how far extended.
- ✓ **parallelogram** – A four-sided figure (quadrilateral) whose opposite sides are parallel.
- ✓ **pentagon** – A plane figure with 5 sides and 5 angles.
- ✓ **per cent** – A value expressed in hundredths using the per cent sign (%) or the words "per cent".
- ✓ **perimeter** – The sum of the lengths around a plane figure.
- ✓ **perpendicular lines** – Lines which intersect so as to form right angle.
- ✓ **pi** (π) – The ratio of the circumference of a circle to its diameter; π=3.14159 or 22/7.
- ✓ **polygon** – A plane figure having any number of sides and angles.
- ✓ **positive number** – A number whose value is greater than zero and which is sometimes preceded by plus sign.
- ✓ **protractor** – An instrument marked off in degrees used for measuring or making off angles of a given size.
- ✓ **pyramid** – A solid figure having triangles for faces.
- ✓ **quadrilateral** – Any four sided plane figure.
- ✓ **radius** – The distance or straight line from the centre to the circumference of a circle.
- ✓ **ratio** – The comparison by means of a division of two like quantities.
- ✓ **rectangle** – A quadrilateral whose opposite sides are equal and which has four right angles.
- ✓ **rectangular solid** – A solid figure whose six faces are rectangles.
- ✓ **regular figure** – A plane figure whose angles are equal and whose sides are equal in length.
- ✓ **right angle** – An angle which contains 90°; one fourth of a rotation.

- ✓ **round number** – A number that is approximate to a certain extent, not accurate.
- ✓ **scale drawing** – A drawing that is the exact shape of an object but which is reduced or enlarged in size in a definite ratio.
- ✓ **scalene triangle** – A triangle in which no two sides are equal**.**
- ✓ **secant** – A line drawn through a circle and extending beyond it.
- ✓ **sector** – The portion of a circle between two radii and an arc.
- ✓ **semicircle** – Half of a circle.
- ✓ **signed number** – Positive and negative numbers, directed numbers.
- ✓ **solid figure** – A figure having three dimensions: length, width and height.
- ✓ **sphere** – A circular solid such that all points on a surface are the same distance from the centre.
- ✓ **square** – A rectangle all of whose sides are equal, or the product obtained by multiplying a number by itself two times.
- ✓ **straight angle** – An angle containing 180°**.**
- ✓ **symbol** – A representation by means of a sign or a letter.
- ✓ **symmetry** – The correspondence of parts such as lines or points.
- ✓ **term** – A member of an expression.
- ✓ **trapezoid** – A quadrilateral having two parallel sides.
- ✓ **triangle** – A closed plane figure with three sides and three angles.
- ✓ **triangular prism** – A solid figure having 3 rectangular faces and 2 parallel triangles for bases.
- ✓ **unlike terms** – The terms of an algebraic expression containing different letters.
- ✓ **vertex** – The point of intersection of the sides of an angle**.**
- ✓ **volume** – The number of cubic units in a solid figure.

ENGLISH-UKRAINIAN VOCABULARY OF MATHEMATICAL TERMS

A

- ➢ Abbreviate – скорочувати
- ➢ Abscissa – абсциса
- ➢ Acquire – здобувати; досягати; опановувати
- ➢ Accuracy – точність, правильність
- ➢ Actually – дійсно, фактично
- ➢ Acute – гострий
- ➢ Addend – доданок
- ➢ Addition – додавання
- ➢ Adjacent – прилеглий, суміжний
- ➢ Advantage – перевага
- ➢ Adverse – протилежний
- ➢ Alternative – альтернатива; взаємовиключний
- ➢ Amount – сума, кількість
- ➢ Angle – кут

- Annex – приєднувати, приписувати, додавати
- Apply – докладати, докладати
- Apportionment – пропорційний розподіл
- Approximately – приблизно
- Arbitrary – довільний
- Arc – дуга, арка
- Area –площа
- Arithmetic – арифметика
- Arrange – розміщувати, розташовувати
- Average – середнє, середнє число
- Axis – вісь

B

- Base – основа
- Below – нижче, внизу
- Binomial – біном, двочлен, двочленний, біноміальний
- Bisect – ділити навпіл
- Blueprint – синя копія, «синька»
- Bound – грань, межа
- Brace – фігурна дужка
- Bracket – квадратна дужка
- Break – переривати
- Branch – гілка, галузь
- Briefly – коротко, стисло
- Bushel – бушель (міра об'єму)

C

- Calculation – обчислення, підрахунок
- Carry – виконувати, проводити
- Centre – центр
- Change – змінювати
- Characteristic – характерна риса (ознака)
- Chart – карта, схема, таблиця, діаграма
- Check – перевіряти, контролювати
- Choose – вибирати
- Chord – хорда
- Circle – коло, окружність
- Circle graph – кругова діаграма
- Circumference – окружність кола
- Cross – риса, хрест; перетинати
- Clockwise – (рухається) в напрямку годинникової стрілки
- Closed figure – замкнута фігура
- Coefficient – коефіцієнт, індекс
- Co-function – ко-функція
- Column – стовпець
- Coincide – збігатися, відповідати, поєднувати
- Combination – поєднання, з'єднання

- Combined – складовою, комбінований
- Common denominator – спільний знаменник
- Common fraction – простий дріб
- Compare – порівнювати, зіставляти
- Complementary – додатковий
- Complete – повний, закінчений
- Compound – складовий, складний
- Computation – обчислення, розрахуно
- Compute – підраховувати, вважати
- Concern – стосуватися, мати відношення
- Confine – обмежувати, укладати
- Congruent – конгруентний, що співпадає
- Connect – з'єднувати
- Consider – розглядати, враховувати
- Consist – складатися
- Construct – конструювати
- Contain – містити в собі, вміщати
- Convenience – зручність
- Conversely – назад
- Convert – звертати, перетворювати
- Coordinate – координатний
- Corner – кут, вершина
- Correct – виправляти
- Corresponding – відповідний, відповідні
- Corresponding angles – відповідні кути
- Cosecant – косеканс
- Cosine – косинус
- Cost – оцінювати, коштувати; вартість
- Cotangent – котангенс
- Count – рахувати, підраховувати
- Counterclockwise – проти годинникової стрілки
- Cube – куб, зводити в куб (в третю ступінь)
- Curve – крива лінія
- Cut – перетинати (про лінії)
- Cylinder – циліндр

D

- Data – дані
- Decagon – десятикутник
- Decide – вирішувати
- Decimal – десятковий
- Decimal place – десятковий розряд
- Decimal point – точка (кома) в десятковому числі
- Decrease – зменшувати, спадати
- Definite – певний
- Degree – ступінь, градус

- Denominate – називати, іменувати
- Denominator – знаменник (дробу)
- Denote – позначати
- Depend – залежати
- Desirable – бажаний
- Determine – визначати, обчислювати
- Diameter – діаметр
- Different – різний
- Digit – цифра, однозначне число, розряд
- Dimension – розмір
- Diminish – зменшувати (ся), скорочувати (ся)
- Directly – безпосередньо
- Disfigure – спотворювати
- Display – показувати, вказувати, виділяти
- Distance – відстань, дальність
- Distinguish – розрізняти, відзначати
- Distribution – розподіл, розповсюдження
- Distributive law – розподільний закон
- Divide – ділити
- Dividend – ділене
- Divisible – подільний
- Division – ділення
- Divisor – дільник
- Dot – точка, крапка
- Dotted – пунктирний
- Double sign – подвійний знак
- Draughtsman – кресляр
- Drawing – креслення
- Drop – опускати (перпендикуляр)
- Duration – тривалість

E

- Edge – грань
- Entire – цілий, повний; суцільний
- Equation – рівняння
- Equality – рівність
- Equivalent – рівнозначний, рівноцінний; еквівалент
- Environment – середовище, оточення
- Establish – довести, встановлювати
- Evaluate – висловлювати в числах
- Evenly – рівномірно
- Evolution – добування кореня
- Explain – пояснювати, тлумачити
- Exponent – показник ступеня
- Expose – розкривати
- Express – висловлювати

- Expression – вираз
- Extend – розширювати
- Extract – витягувати корінь

F

- Face – грань
- Factor – множник
- Figure – малюнок; фігура
- Fit – відповідати, годитися
- Fixed point – постійна точка, певна точка
- Foot – фут (міра довжина)
- Formula – формула
- Fraction – дроб

G

- General – загальний, головний
- Geometric – геометричний
- Gram – грам
- Graph – діаграма, графік

H

- Hypotenuse – гіпотенуза
- Half – половина
- Height – висота
- Hence – отже
- Hexagon – шестикутник
- Higher term – вищий член
- Hindu-Arabic numeral – індо-арабське число
- Horizontal – горизонтальний
- Hour – година
- Hundred – сто
- Hundredth – сотий; сота частина

I

- Identify – ототожнювати
- Importance – значення; значущість
- Improper – невірний
- Inaccurate – неточний; невірний
- Inch – дюйм
- Include – укладати, містити в собі; включати
- Increase – зростати, збільшувати
- Indefinitely – необмежено, невизначено
- Indicate – служити ознакою, показувати
- Infinite – нескінченний
- Inscribe – вписувати
- Inside – внутрішній
- Inspect – розглядати
- Integral – інтеграл; ціле число
- Interpolation – інтерполяція

- Interchange – обмін
- Intersect – перетинати (ся), схрещувати (ся)
- Inverse – зворотний
- Involve – залучати
- Involution – зведення в ступінь
- Isosceles – рівнобедрений
- Item – пункт, параграф, окремий предмет

L

- Label – відмітка, позначення
- Lateral – бічний
- Law – закон, правило
- Length – довжина
- Lengthwise – в довжину, вздовж
- Lessen – зменшувати
- Like – подібний
- Linear – лінійний
- Logarithm – логарифм
- Logarithm scale – логарифмічний масштаб
- Lowest term – нижчий член

M

- Magnitude – величина, розмір
- Mantissa – мантиса
- Marc off – відокремлювати
- Mathematics – математика
- Mean – середнє число; середній
- Metric system – метрична система
- Mile – миля
- Minuend – зменшуване
- Minute – хвилина; 1/60 частина градуса
- Mistake – помилка
- Mixed number – змішане число
- Modify – видозмінювати
- Monomial – одночлен
- Move – рухати; керувати, маніпулювати
- Multinomial – багаточленний; многочлен, поліном
- Multiplicand – множене
- Multiplication – множення

N

- Near – майже, близько
- Number – число, кількість; нумерувати
- Numeral – цифра; числовий, цифровий
- Numerator – чисельник

O

- Object – предмет
- Oblique – похилий

- Obtain – досягати; отримувати
- Obtuse – тупий
- Omit – пропускати; не включати
- Operation – дія; операція
- Opposite – протилежний, протилежний
- Ordinary – звичайний
- Original – початковий, вихідний
- Ounce – унція (міра ваги)
- Outside – зовні

P

- Parallel – паралельний
- Parallelogram – паралелограм
- Parenthesis – кругла скобка
- Part – частина, частка; відокремлювати
- Partial – частковий
- Particular – особливий
- Peck – міра сипучих тіл
- Per cent – на сотню, відсоток
- Percentage – відсоток, процентне відношення
- Perfect – точний, закінчений
- Perform – здійснювати; виконувати
- Perimeter – периметр, довжина замкнутої кривої
- Period – розряд; період
- Perpendicular – перпендикуляр
- Phenomenon – явище
- Pictogram – піктограма, діаграма
- Pictorial – наочний
- Pie graph – кругова діаграма
- Pint – пінта
- Polynomial – многочлен, поліном
- Portion – частина, частка; розділяти, ділити на частини
- Possibility – можливість
- Pound – фунт (міра ваги)
- Power –ступінь, показник ступеня
- Price – ціна, оцінювати
- Prime – первинний, штрих
- Principle – аксіома, закон, основне положення
- Prism – призма
- Problem – задача, проблема
- Proper fraction – правильний дріб
- Property –властивість
- Protractor – транспортир, кутомір
- Provide – надати
- Purpose – мета; намір

Q

- Quadrant – квадрант; чверть круга; сектор
- Quadrilateral – чотирикутник
- Quantity – кількість, величина
- Quart – кварта (міра рідини)
- Quarter – чверть
- Quotient – частка

R

- Radian –радіан
- Radius –радіус
- Raise to a power –підносити до ступеня
- Random –випадковий, довільний
- Rate – відношення; коефіцієнт; швидкість
- Ratio – пропорція; відношення; коефіцієнт
- Reading – показання, читання
- Rectangle – прямокутник
- Rectangular – прямокутний
- Reduce – скорочувати, зменшувати
- Refer to – посилатися на, мати відношення
- Reference – посилання
- Reflex – відображення
- Regular – правильний, регулярний
- Relate – ставитися
- Relation – відношення, співвідношення
- Remainder – залишок, залишковий член
- Remove – усувати, викреслювати
- Replace – замінювати; заміщати
- Represent – представляти, зображати
- Require – вимагати
- Respectively – відповідно, щодо
- Restriction – обмеження, скорочення
- Result – результат, підсумок, висновок
- Right – прямий, прямокутний
- Root – корінь
- Round –off – округлення

S

- Satisfy – задовольняти
- Scale – масштаб, розмір; шкала; система числення
- Scalene – нерівносторонні, різнобічний
- Secant – січний, що перетинає; секанс
- Segment – сегмент, відрізок
- Select – добірний, обраний
- Semicircle – півколо
- Series – ряд, серія
- Set – ряд; система, комплект
- Shorthand – стенографія

- Side – сторона; бік; край
- Sign – знак; символ; ознака
- Simplify – спрощувати
- Since – з тих пір як
- Sine –сінус
- Size – розмір, величина
- Slide –похила площина
- Solution – рішення
- Solve – розв’язувати
- Special –спеціальний; особливий
- Specific – характерний; точний
- Square – квадрат; возводити в квадрат
- Standard –зразок, міра, норма
- State – сформулювати
- Statement – формулювання; виклад
- Straight – прямий
- Subdivision – підрозділ
- Substitute – підставляти
- Subtend – стягувати (дугу; боку трикутника)
- Subtract – вичитати
- Subtrahend – від'ємник
- Sum – сума; підсумок; арифметична задача
- Supplementary – додатковий
- Symbol – позначення; знак
- Symmetrical – симетричний
- System – система

T

- Table – таблиця
- Tenth – десята частина; десятий
- Term – член; терм
- Terminal – заключний; кінцевий
- Theorem – теорема
- Thickness – товщина; шар
- Thousand – тисяча
- Ton – тонна
- Top – вершина; верхівка
- Total – весь, цілий
- Transform – перетворювати, перетворювати
- Trapezoid – трапеція
- Trinomial –тричлен
- True – відповідати нормі; правильний
- Turn – повертати

U

- Unequal – неадекватный, нерівный
- Until – одиниця

- Unlike – несхожий на
- Upper – верхній

V

- Value – величина; значення
- Vary – расходитись, змінятись
- Various – різний
- Vertex – вершина
- Vertical – вертикальный; вертикаль
- Vice-versa – навпаки
- Visual – зоровий
- Volume – обсяг; маса

W

- Weight – вага, тяжкість
- Whole – цілий, весь
- Width – ширина, відстань
- Without – без

Y

- Yard – ярд (міра довжини)
- Yield –видавати, давати

Z

- Zero – нуль

KEYS TO ACTIVITIES

В друкованій версії видання.

NOTES

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