MINISTERUL EDUCAȚIEI


Agenția Națională pentru Curriculum și Evaluare

Numele:

Prenumele:

Patronimicul:

Instituţia de învăţămînt:

## Localitatea:

# MATEMATICA (ÎN LIMBA ENGLEZĂ) 

EXAMEN NAȚIONAL DE ABSOLVIRE A GIMNAZIULUI
06 iunie 2016
Timp alocat - 120 de minute

Rechizite şi materiale permise: pix cu cerneală albastră, creion, riglă, radieră.

Instrucțiuni pentru candidat:

- Citeşte cu atenţie fiecare item şi efectuează operaţiile solicitate.
- Lucrează independent.


## Îţi dorim mult succes!

Numele şi prenumele evaluatorului: $\qquad$ Punctaj total: $\qquad$

## Annex

$$
\begin{gathered}
(a-b)(a+b)=a^{2}-b^{2} \\
L_{\text {circle }}=2 \pi R
\end{gathered}
$$

| Nr. | Items | Score |
| :---: | :---: | :---: |
| 1. | Fill in the box so that the statement becomes true. "If $a=-5+7$ and $b=\frac{3}{2} \cdot \frac{4}{6}$, then the value of the difference $b-a$ is the number $\square$ ." | $\begin{aligned} & \mathrm{L} \\ & 0 \\ & 3 \end{aligned}$ |
| 2. | The length of a circle with the centre $O$, represented on the picture, is equal to $4 \pi \mathrm{~cm}$. The point $O$ lies on the chord $A B$. Determine and write in the box the length of the chord $A B$. $A B=\square \mathrm{cm} .$ | $\begin{aligned} & \text { L } \\ & 0 \\ & 3 \end{aligned}$ |
| 3. | On the picture, the graph of the function $f: \mathbb{R} \rightarrow \mathbb{R}, \quad f(x)=a x+b$ <br> is represented. <br> Using the picture, fill in the box with one of the following expressions " $a$ positive number" or " $a$ negative number", so that the statement becomes true. <br> "The zero of the function $f$ is $\square$ ." | $\begin{aligned} & L \\ & 0 \\ & 3 \end{aligned}$ |
| 4. | Maria has the purpose for reading a book of 300 pages during the holidays. On the first day of holidays she read 45 pages. Express as a percentage the number of read pages out of the total number of pages of the book. <br> Solution: <br> Answer: | $\begin{aligned} & \mathrm{L} \\ & 0 \\ & 1 \\ & 2 \\ & 3 \\ & 3 \\ & 4 \end{aligned}$ |


| 5. | Calculate: $\frac{2}{\sqrt{7}-3}+\sqrt{7}+4$. <br> Solution: <br> Answer: | L 0 1 2 3 4 |
| :---: | :---: | :---: |
| 6. | Let $A$ be the set of real solutions of the equation $4 x^{2}+3 x-10=0$. Determine the set $A \cup\{-2 ; 0\}$. <br> Solution: <br> Answer: $\qquad$ | L 0 1 2 3 4 |
| 7. | The length of the base $A C$ of an isosceles triangle $A B C$ is equal to 24 cm . The perimeter of the triangle is equal to 50 cm . Determine the length of the altitude from the vertex $B$ to the base AC. <br> Solution: <br> Answer: $\qquad$ | L 0 1 2 3 4 5 |


| 8. | There are 21 roses in a vase. The roses are red colored and white colored. The number of red roses is three more than twice the number of white roses. Determine the number of roses of each colour in the vase. <br> Solution: <br> Answer: | L 0 1 2 3 4 5 |
| :---: | :---: | :---: |
| 9. | Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}, f(x)=-3 x-2$. Determine the real values of $x$, such that $f(x)<f(0)-1$. <br> Solution: <br> Answer: $x \in$ $\qquad$ | L 0 1 2 3 4 5 |
| 10. | A swimming pool is shaped as a regular quadrangular prism with the height of 2 m and the side of the base of 4 m . When installing ceramic tiles on the walls and on the floor of the swimming pool some adhesive is used. A bag with tile adhesive is enough to cover a surface of $4 \mathrm{~m}^{2}$. Determine the number of bags with adhesive required for installation the ceramic tiles. <br> Solution: <br> Answer: | L 0 1 2 3 4 |


| 11. | Find all natural values of $X$, for which the value of the expression $E(X)=\frac{X^{2}+2 X-8}{X^{2}-2 X}-\frac{X+2}{X}$ <br> is a natural number. <br> Solution: <br> Answer: | L 0 1 2 3 4 5 6 |
| :---: | :---: | :---: |
| 12. | Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}, f(x)=m x^{2}+2 x+1, m \neq 0$. Determine all real values of $m$, such that the graph of the function $f$ is a parabola with upward arms, which intersects the axis of abscissas in two distinct points. <br> Solution: <br> Answer: | L 0 1 2 3 4 |

