### MINISTERUL EDUCAȚIEI ȘI CERCETĂRII AL REPUBLICII MOLDOVA



Numele elevului:
Prenumele elevului:
Patronimicul elevului:
Instituția de învățământ:
Localitatea:
Raionul / Municipiul:

## MATEMATICA (ÎN LIMBA ENGLEZĂ)

#### EXAMEN NAȚIONAL DE ABSOLVIRE A GIMNAZIULUI SESIUNEA SUPLIMENTARĂ / REPETATĂ

04 iulie 2023 Timp alocat – 120 de minute

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

Instrucțiuni pentru candidat:

- Citește cu atenție fiecare item și efectuează operațiile solicitate.
- Lucrează independent.

# Îți dorim mult succes!

Numele şi prenumele evaluatorului:	Punctaj total:

#### Annex

$$\mathcal{A}_{square} = a^{2}$$

$$\mathcal{A}_{trapezoid} = \frac{a+b}{2}h$$

$$\mathcal{V}_{prism} = \mathcal{A}_{b} \cdot h$$

$$\mathcal{A}_{lat.surf.prism.} = p \cdot h$$

$$V\left(-\frac{b}{2a}; -\frac{\Delta}{4a}\right)$$

Nr.	Items	Score
1.	Let $a=-13+5$ and $b=\frac{2}{9}\cdot 18$ . Fill in the boxes with integers, so that the statement becomes true. $"a= , \ b= , \ \frac{a}{b}= .$ "	L 0 1 2 3
2.	On the picture, the points $A, B$ and $C$ lie on the circle, so that the arcs $AB, BC$ and $CA$ are congruent. Write in the box the degree measure of the angle $ABC$ . $m(\angle ABC) = $	L 0 3
3.	On the picture, the graph of the function $f: \mathbb{R} \to \mathbb{R}, \ f(x) = ax + b, \ a \neq 0,$ is represented. Write in the box one of the symbols "<" or ">", so that the statement becomes true. $a + b \qquad 0.$	L 0 3
4.	In 2022 the monthly salary of an employee was of 9500 lei. In 2023 the salary increased by 12%. Determine the monthly salary of the employee in 2023. <i>Solution:</i> Answer:	L 0 1 2 3 4
5.	Calculate the value of the expression $\left(\frac{10}{\sqrt{5}} + 6\sqrt{5}\right)$ : $\sqrt{20}$ . <i>Solution:</i> Answer:	L 0 1 2 3 4

6.	Let $x_1$ and $x_2$ be the real solutions of the equation $2x^2 - 3x + 1 = 0$ . Determine the value of the expression $\frac{1}{x_1} + \frac{1}{x_2}$ . <i>Solution:</i>	L 0 1 2 3 4
7.	In the rectangular trapezoid $ABCD$ , $m(\angle A) = m(\angle B) = 90^\circ$ , $m(\angle D) = 30^\circ$ , $BC = 5\sqrt{3}$ cm and $CD = 8$ cm. Calculate the area of the trapezoid $ABCD$ . Solution:	L 0 1 2 3 4 5 5

8.	Ion wrote on a card two numbers, whose sum is equal to 150. Ion observed that the half of the first number is 15 less than the second number. Determine the numbers that Ion wrote on the card.  Solution:  Answer:	L 0 1 2 3 4 5
9.	Consider the function $f: \mathbb{R} \to \mathbb{R}$ , $f(x) = -3x + 1$ . Determine the real values of $x$ , such that the respective values of the function $f$ are not less than $-5$ . <i>Solution:</i>	L 0 1 2 3 4 5
	Answer: $x \in$	
10.	The perimeter of the base of a regular quadrilateral prism is equal to 12 cm, and the area of the lateral surface is equal to 48 cm². Calculate the volume of the prism.  Solution:  Answer:	L 0 1 2 3 4

11.	Solve in the set $\mathbb{R}$ the equation $\frac{x^2+1}{x^2-x} + \frac{2}{x-1} = \frac{3x-1}{x}$ . <i>Solution:</i>	L 0 1 2 3 4 5 6
12.	Consider the function $f: \mathbb{R} \to \mathbb{R}$ , $f(x) = x^2 + mx - m^2 + m$ . Determine the real values of $m$ , such that $f(-1) = -15$ , and the abscissa of the vertex of the parabola, which represents the graph of the function $f$ , is a positive number. Solution:	L 0 1 2 3 4

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