MINISTERUL EDUCAŢIEI, CULTURII ŞI CERCETĂRII AL REPUBLICII MOLDOVA

Agenţia Națională pentru Curriculum și Evaluare

Numele elevului:_____

Prenumele elevului:_____

Patronimicul elevului:_____

Instituția de învățământ:_____

_____

_____

Localitatea:_____

Raionul / Municipiul:_____

MATEMATICA (ÎN LIMBA ENGLEZĂ)

EXAMEN NAȚIONAL DE ABSOLVIRE A GIMNAZIULUI
SESIUNEA DE BAZĂ

07 iunie 2021
Timp alocat – 120 de minute

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

Instrucţiuni pentru candidat:

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

Îţi dorim mult succes!

Numele şi prenumele evaluatorului: _____ Punctaj total:_____

Annex

$$x^m \cdot x^n = x^{m+n}$$

$$x^m : x^n = x^{m-n}$$

$$(x^m)^n = x^{m \cdot n}$$

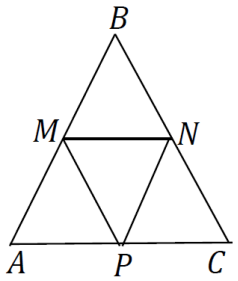
$$(a-b)(a+b) = a^2 - b^2$$

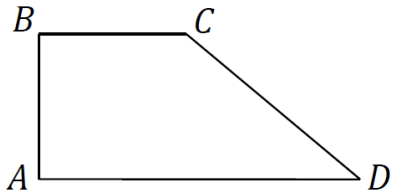
$$(a-b)^2 = a^2 - 2ab + b^2$$

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

$$\mathcal{V}_{ball} = \frac{4}{3}\pi R^3$$

$$\mathcal{V}_{cylinder} = \pi R^2 H$$

Nr.	Items	Score
1.	Let $a = 2 - 4$ and $b = \frac{25}{2} : \frac{5}{4}$. Fill in the boxes with real numbers, so that the statement becomes true. "$a =$ ☐ , $b =$ ☐ , $a \cdot b =$ ☐ ."	L 0 1 2 3
2.	On the picture M, N, P are midpoints of the sides AB, BC, AC of the equilateral triangle ABC, respectively. Write in the box the perimeter of the triangle MNP, if it is known that $AB = 6$ cm. $P_{MNP} =$ ☐ cm. 	L 0 3
3.	Write in the box a real nonzero number so that the statement becomes true. "The graph of the function $f: \mathbb{R} \to \mathbb{R}$, $f(x) =$ ☐ $x^2 - x + 4$, is a parabola which opens upward. "	L 0 3
4.	In April with his bank card Petru performed 120 electronic transactions, and in May - 15% more. Determine how many electronic transactions Petru performed in May. *Solution:* *Answer:*_____.	L 0 1 2 3 4
5.	Calculate the value of the expression: $\frac{4^8 + 25^0 - 1}{8^4}$. *Solution:* *Answer:*_____.	L 0 1 2 3 4

6.	Determine the absolute value of the difference of the real solutions of the equation $x^2 - x - 20 = 0$. *Solution:* *Answer:*_____.	L 0 1 2 3 4
7.	Let $ABCD$ be a right-angled trapezoid, where $AD \parallel BC$, $m(\angle A) = 90°, m(\angle D) = 30°, AB = BC = 4$ cm. Determine the length of the side AD.  *Solution:* *Answer:*_____.	L 0 1 2 3 4 5

8.	With an amount of 30000 lei a company bought 3 mobile phones and 2 laptops. Determine the price of a mobile phone and the price of a laptop, if it is known that for a laptop the company paid 2500 lei more than for a mobile phone. *Solution:* *Answer:*_____.	L 0 1 2 3 4 5
9.	Consider the function $f:\mathbb{R}\to\mathbb{R},\ f(x)=-3x+5$. Determine the real values of x, for which the corresponding values of the function f are not greater than 2. *Solution:* *Answer:* $x\in$ _____.	L 0 1 2 3 4 5
10.	Three spherical metallic balls with the radius of 2 cm are melted and recast into a right circular cylinder. Determine the length of the altitude of the cylinder, if the radius of the base is congruent with the radius of the ball. *Solution:* *Answer:*_____.	L 0 1 2 3 4

11.	Consider the expression $E(X) = \left(\frac{2X}{X^2-4} - \frac{1}{X+2}\right) : \frac{X}{6-3X} + \frac{3}{X}$. Show that $E(X) = 0$, for every $X \in \mathbb{R} \setminus \{-2; 0; 2\}$. *Solution:*	L 0 1 2 3 4 5 6
12.	Consider the function $f: \mathbb{R} \to \mathbb{R},\ f(x) = -mx + m^2,\ m \neq 0$. Determine all real values of m, for which the function f is monotonically increasing and the graph of the function f intersects the y - axis at a point with the ordinate equal to 4. *Solution:* *Answer:*_____.	L 0 1 2 3 4