

**MINISTERUL EDUCAȚIEI,
CULTURII ȘI CERCETĂRII
AL REPUBLICII MOLDOVA**



Agenția Națională pentru
Curriculum și Evaluare

Numele: _____
Prenumele: _____
Patronimicul: _____
Instituția de învățământ: _____

Localitatea: _____

Raionul / Municipiul: _____

MATEMATICA (ÎN LIMBA ENGLEZĂ)

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

04 iulie 2018

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 și prenumele evaluatorului: _____ Punctaj total: _____

Annex

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

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

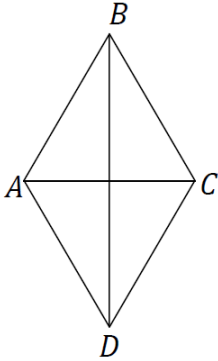
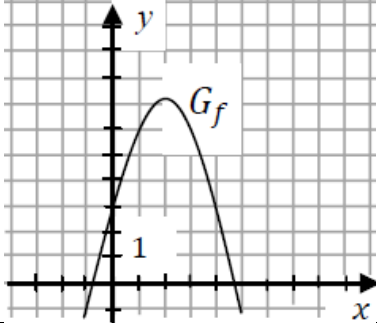
$$(x^m)^n = x^{m \cdot n}$$

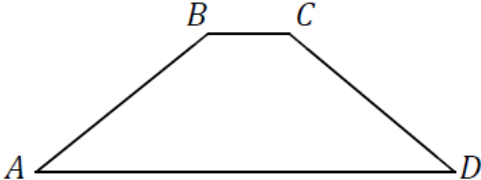
$$(a - b)(a + b) = a^2 - b^2$$

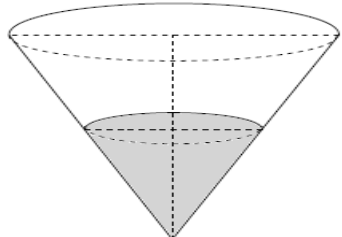
$$(a - b)^2 = a^2 - 2ab + b^2$$

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

$$V_{\text{cone}} = \frac{1}{3}\pi r^2 h$$

Nr.	Items	Score
1.	Fill in the box so that the statement becomes true. “If $a = -2 - 3$ and $b = \frac{4}{6} \cdot \frac{15}{2}$, then $\frac{a}{b} = \boxed{}$.”	L 0 3
2.	On the picture the rhombus $ABCD$ is represented. Write in the box the measure in degrees of the angle ABC , if it is known that $m(\angle DBC) = 20^\circ$. $m(\angle ABC) = \boxed{}$. <div style="text-align: right; margin-top: 20px;">  </div>	L 0 3
3.	On the picture, the graph of the function $f: \mathbb{R} \rightarrow \mathbb{R}, \quad f(x) = ax^2 + bx + c, \quad a \neq 0,$ is represented. Using the picture, fill in the box with one of the symbols “<”, “>” or “=”, so that the statement becomes true. $c \boxed{} 0.$ <div style="text-align: right; margin-top: 20px;">  </div>	L 0 3
4.	A car consumes 8 liters of fuel per 100 kilometers. Determine how many liters of fuel the car consumes for a distance of 425 kilometers. <i>Solution:</i> <div style="text-align: right; margin-top: 20px;"> <i>Answer:</i> _____ . </div>	L 0 1 2 3 4

5.	<p>Calculate the value of the expression $\frac{2^{-2} \cdot 8^4}{16^2}$.</p> <p><i>Solution:</i></p> <p><i>Answer:</i> _____.</p>	L 0 1 2 3 4
6.	<p>Determine the number of integer solutions of the equation $3x^2 + 8x - 3 = 0$.</p> <p><i>Solution:</i></p> <p><i>Answer:</i> _____.</p>	L 0 1 2 3 4
7.	<p>Consider the isosceles trapezoid $ABCD$, where $BC \parallel AD$, $AB = 4$ cm, $BC = \sqrt{3}$ cm and $m(\angle A) = 30^\circ$. Determine the length of the base AD.</p> <p><i>Solution:</i></p> <div style="text-align: center;">  </div> <p><i>Answer:</i> _____.</p>	L 0 1 2 3 4 5

8.	<p>Mihai and Maria had together 219 lei. After Mihai spent 52 lei on a CD and Maria spent 47 lei on a book, they have equal sums of money. Determine how many lei had at the beginning each of them.</p> <p><i>Solution:</i></p> <p>_____</p> <p><i>Answer:</i> _____.</p>	L 0 1 2 3 4 5
9.	<p>Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = 4x - 5$. Determine all real values of x, such that $x - f(x) < f(1)$.</p> <p><i>Solution:</i></p> <p>_____</p> <p><i>Answer:</i> $x \in$ _____.</p>	L 0 1 2 3 4 5
10.	<p>For a chemical experiment a pupil needs 20 cm^3 of ethyl alcohol. He poured ethyl alcohol into a recipient, shaped as a right circular cone with the radius of the base of 6 cm and the height of 4 cm, filling the recipient till the half of its height (see the picture). Determine if the student has poured enough ethyl alcohol into the recipient.</p> <p><i>Solution:</i></p> <p>_____</p> <p><i>Answer:</i> _____.</p>	 <p>L 0 1 2 3 4</p>

11.	<p>Consider the expression $E(X) = \left(\frac{2X}{X+1} - 1\right) : \frac{X^2-1}{X^2+2X+1}$. Prove that $E(X) = 1$, for every $X \in \mathbb{R} \setminus \{-1; 1\}$.</p> <p><i>Solution:</i></p>	L 0 1 2 3 4 5 6
12.	<p>Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = mx + m^2 + m - 4$. Determine all real values of m, such that the graph of the function f intersects the x - axis in a point with the abscissa $x = -1$ and the function f is strictly decreasing on \mathbb{R}.</p> <p><i>Solution:</i></p>	L 0 1 2 3 4
<p><i>Answer:</i> _____.</p>		