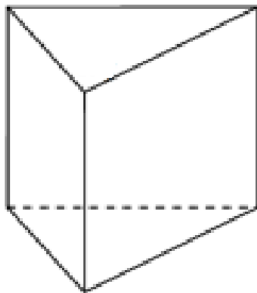


5.	Solve in the set $\mathbb{R}$ the equation $4^{-3x-6} = 2^{-x} \cdot 8$. <i>Solution:</i>	L 0 1 2 3 4 5	L 0 1 2 3 4 5
<i>Answer:</i> _____.			
6.	Consider $d = \begin{vmatrix} -1 & -2 & -1 \\ 2 & 2 & 1 \\ 5 & 4 & 3 \end{vmatrix}$. Solve in the set $\mathbb{R}$ the inequality $\sqrt{x-2} < d$. <i>Solution:</i>	L 0 1 2 3 4 5	L 0 1 2 3 4 5
<i>Answer:</i> _____.			

7.	Let $ABCD$ be a isosceles trapezoid, where $AD \parallel BC$, $AD = 6$ cm, $CD = 2$ cm and $BC = 5$ cm. The lines AB and CD intersect at point M. Determine the length of the altitude of the triangle AMD from the vertex M to the side AD. <i>Solution:</i> <i>Answer:</i>_____.	L 0 1 2 3 4 5 6	L 0 1 2 3 4 5 6
8.	Fill in the box with one of the symbols “<”, “>” or “=” so that the statement becomes true. $\int_0^1 \left(\frac{4}{4x+1} - 6x + 1 \right) dx \quad \boxed{} \quad 0.$ <i>Justify your answer.</i>	L 0 1 2 3 4 5 6	L 0 1 2 3 4 5 6

9.	In a center for Information Technology, 4 programmers, 5 engineers and 3 testers are employed. In July, eight randomly taken employees of the center will be entitled to annual leave. Determine the probability that in July in the center at least one specialist of each profile will remain to work. <i>Solution:</i>	L 0 1 2 3 4 5	L 0 1 2 3 4 5	
	<i>Answer:</i>_____.			
10.	The base of a right prism is a right triangle with a cathetus of 8 cm. The radius of the circle, inscribed in the triangle of the base, is 3 cm and it is congruent to the altitude of the prism. Determine the volume of the prism. <i>Solution:</i>		L 0 1 2 3 4 5 6	L 0 1 2 3 4 5 6
	<i>Answer:</i>_____.			

11.	Calculate the value of the expression $E(\alpha) = \frac{4}{5}\operatorname{tg}\alpha + \frac{5}{12}\sin(2\alpha)$, if it is known that $\cos \alpha = -\frac{4}{5}$ and $\alpha \in (-\pi; -\frac{\pi}{2})$. <i>Solution:</i>	L 0 1 2 3 4 5	L 0 1 2 3 4 5
12.	Consider the function $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = a^2x^4 + 2(a^2 - 1)x^2 + 3$. Determine all real values of the parameter a , for which the function f has only one point of local extrema. <i>Solution:</i>	L 0 1 2 3 4 5 6 7	L 0 1 2 3 4 5 6 7

Annex

$$\mathcal{V}_{prism}=\mathcal{A}_b\cdot H$$

$$C_n^m=\frac{n!}{m!(n-m)!},\qquad 0\leq m\leq n$$

$$(x^\alpha)'=\alpha\,x^{\alpha-1}$$

$$\int \frac{1}{x}dx=\ln|x|+C$$

$$\int x^\alpha dx=\frac{x^{\alpha+1}}{\alpha+1}+C,\qquad \alpha\in\mathbb{R}\setminus\{-1\}$$

$$\sin(2\alpha)=2\sin\alpha\cos\alpha$$