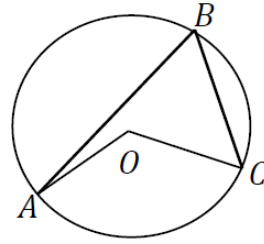


No.	Items	Score	
ALGEBRA			
1.	Calculate: $\log_4 32 - 4,5$. <i>Solution:</i> <i>Answer:</i> _____	L 0 1 2 3 4 5	L 0 1 2 3 4 5
2.	Consider the matrix $A = \begin{pmatrix} 2 & 1 \\ -1 & 3 \end{pmatrix}$. Calculate the determinant of the matrix $X = A^2 - 3I_2$, where $I_2 = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$. <i>Solution:</i> <i>Answer:</i> _____	L 0 1 2 3 4 5 6 7 8	L 0 1 2 3 4 5 6 7 8
3.	Determine the value of the expression: $\sqrt[3]{\left(6\frac{1}{4}\right)^{\frac{1}{2}} - \left(\frac{1}{81}\right)^{-0,25}} + \frac{3}{8}$. <i>Solution:</i> <i>Answer:</i> _____	L 0 1 2 3 4 5 6 7 8	L 0 1 2 3 4 5 6 7 8

GEOMETRY

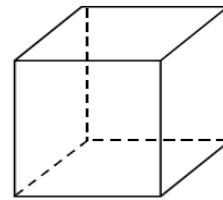
6. On the picture, the points A, B and C lie on the circle with the center O , so that $m(\angle ABC) = 50^\circ$ and $m(\angle AOC) = (3x - 50)^\circ$. Determine the value of x .
Solution:



- | | |
|---|---|
| L | L |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |

Answer: _____.

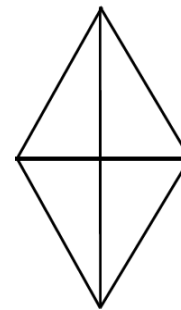
7. The total surface area of a cube is equal to 12 cm^2 . Determine the length of the diagonal of a face of the cube.
Solution:



- | | |
|---|---|
| L | L |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |

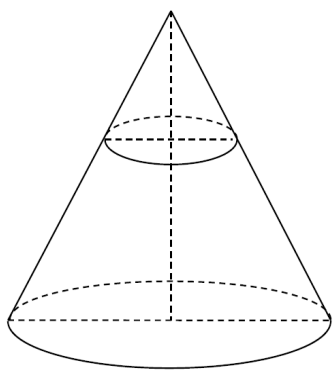
Answer: _____.

8. The obtuse angle of a rhombus is 120° . Determine the length of the largest diagonal of the rhombus, if the perimeter of the rhombus is equal to 40 cm.
Solution:



- | | |
|---|---|
| L | L |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |

Answer: _____.

9.	<p>In a right circular cone, the height is 8 cm and the slant height is 10 cm. Through the point that divides the height of the cone in the ratio 1:2 from the vertex, a plane parallel to the base is taken. Determine the area of the section, obtained at the intersection of the cone with the plane.</p> <p><i>Solution:</i></p> <p><i>Answer:</i> _____.</p>		L 0 1 2 3 4 5 6 7 8	L 0 1 2 3 4 5 6 7 8
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FUNCTIONS

10.	<p>Consider the function $f: \mathbb{R}^* \rightarrow \mathbb{R}, f(x) = \frac{2}{x}$. Determine, if the point $M(\sqrt{3} - 1; \sqrt{3} + 1)$ lies on the graph of the function f.</p> <p><i>Solution:</i></p> <p><i>Answer:</i> _____.</p>	L 0 1 2 3 4 5	L 0 1 2 3 4 5
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