

Imię i nazwisko:

Klasa:

Grupa 1

Wynik:

Question 1 (1 pt)

How many solutions does the equation $||x - 3| - 1| = 2$ have?

- A. 0 B. 2 C. 3 D. 4

Question 2 (1 pt)

If the line with the equation $y - \sqrt{3}x + 1 = 0$ crosses the x -axis at the angle α , then

- A. $\alpha = 30^\circ$ B. $\alpha = 60^\circ$ C. $\alpha = 120^\circ$ D. $\alpha = 150^\circ$

Question 3 (1 pt)

If the lines given by the equations $y = 2x + m - 1$ and $y = (m - 1)x - m + 3$ are parallel, then

- A. $m = \frac{1}{2}$ B. $m = -\frac{1}{2}$ C. $m = 3$ D. $m = -3$

Question 4 (1 pt)

For what values of m does the function $f(x) = (m - 3)x + m^2 - 1$ pass through the origin?

- A. $m \in \{-1, 1\}$ B. $m \in \mathbb{R}$ C. $m \in (-\infty, 3)$ D. $(3, \infty)$

Question 5 (1 pt)

The equation of the line that passes through $(\sqrt{3}, 1)$ and makes an angle of 120° with the x -axis is:

- A. $y = \frac{\sqrt{3}}{3}x$ B. $y = -\frac{\sqrt{3}}{3}x + 2$ C. $y = -\sqrt{3}x + 4$ D. $y = -x + \sqrt{3} + 1$

Question 6 (3 pts)

Consider the following system of equations:

$$\begin{cases} 2x - y = 4 - a \\ x + y = a - 3 \end{cases}$$

Find the set of values of a for which the solution (x, y) to this system lies in the III quadrant.

Question 7 (3 pts)

Find the coordinates of the point of intersection of $f(x) = |x - 2| + |x + 2|$ and $g(x) = x + 3$.

Question 4 (3 pts)

Find the number of solutions to the equation:

$$|x + 2| - |x - 3| = x + a$$

depending on the parameter a .

Question 10 (5 pts)

Find the values of the parameter k for which the functions $f(x) = 2x + \frac{k}{2}$ and $g(x) = 3x - 2k$ intersect inside the triangle with vertices $A(-2, 0)$, $B(8, 0)$ and $C(4, 6)$.