

Imię i nazwisko:

Klasa:

Grupa 1

Wynik:

Question 1 (1 pt)

The graph of $f(x) = \sqrt{x}$ has been first translated by a vector $[-1, -1]$ and then reflected in the y -axis to form a graph of $g(x)$. The equation of $g(x)$ is given by:

- A. $g(x) = \sqrt{-x-1} - 1$ B. $g(x) = \sqrt{-x+1} - 1$
C. $g(x) = -\sqrt{x+1} - 1$ D. $g(x) = -\sqrt{x+1} + 1$

Question 2 (1 pt)

Consider a triangle ABC with $|AB| = 10$, $\angle ABC = 42^\circ$ and $\angle BAC = 93^\circ$. The radius of the circle circumscribing this triangle is equal to:

- A. $\frac{5\sqrt{2}}{2}$ B. 5 C. $5\sqrt{2}$ D. $10\sqrt{2}$

Question 3 (1 pt)

Consider a parallelogram $ABCD$ with $A(3, 1)$, $B(5, 5)$ and $D(2, 2)$. The coordinates of point C are:

- A. (4, 4) B. (4, 5) C. (4, 6) D. (4, 7)

Question 4 (1 pt)

Point M with coordinates $(\sqrt{2}, 1)$ is the mid-point of the line segment AB , where $A(-3\sqrt{2}, -4)$. Point B has coordinates:

- A. $(-5\sqrt{2}, -\frac{3}{2})$ B. $(-\sqrt{2}, -\frac{3}{2})$ C. $(\sqrt{2}, 2)$ D. $(5\sqrt{2}, 6)$

Question 5 (1 pt)

A circle has been inscribed in a square $ABCD$ with vertices $A(-2, 4)$, $B(6, 4)$ and $C(6, 12)$. The centre of the circle has coordinates:

- A. (2, 8) B. (4, 8) C. (2, 4) D. (4, 4)

Question 6 (2 pts)

Let $A(-1, 3)$ and $B(5, 15)$ find the coordinates of point P such that $\frac{|AP|}{|PB|} = \frac{1}{3}$

Question 7 (3 pts)

Consider the equation:

$$|2x^2 + 4x - 1| - 2 = 2 - m$$

Find the number of solutions to this equation depending on the parameter m .

Question 8 (3 pts)

Solve the inequality:

$$||x| - 2| \leq \sqrt{|x|}$$

Question 9 (3 pts)

Let $f(x)$ be a function with domain $(-3, 3)$ and range $(-4, 0)$.

Suppose that $f(2) = -3$, $f(1) = -4$, $f(0) = -2$ and $f(-1) = -1$.

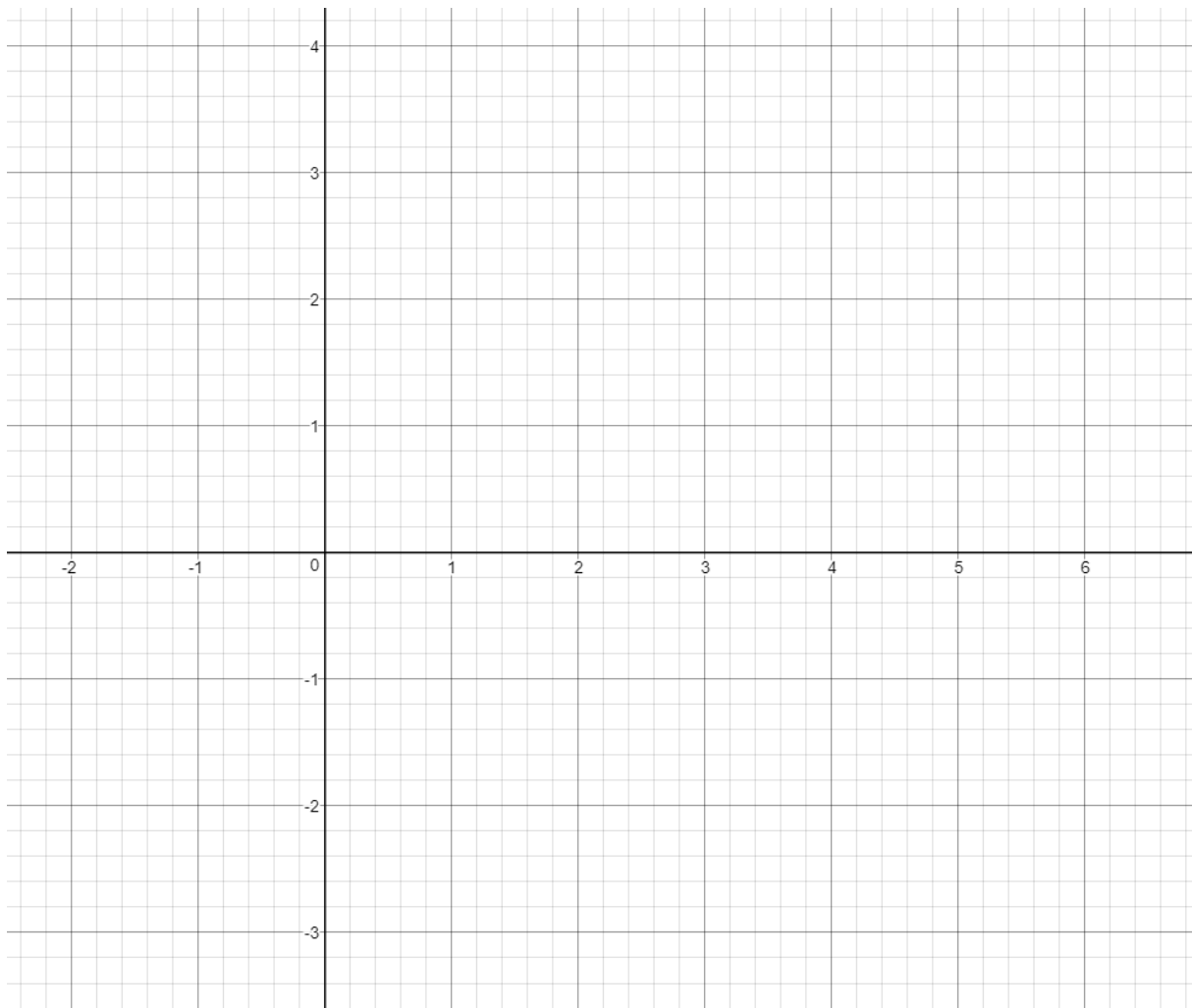
Consider a function $g(x) = |f(-x + 1)| - 1$.

- State the domain and range of $g(x)$.
- Calculate $g(0)$.
- Solve $g(x) = 0$.

Question 10 (4 pts)

Sketch the function

$$f(x) = \begin{cases} |x^2 - 1| & \text{if } x < -1 \\ \frac{1}{x} + 1 & \text{if } -1 \leq x < 2 \\ |x - 3| + \frac{1}{2} & \text{if } x \geq 2 \end{cases}$$



Consider the equation:

$$f(x) = |\log_4(m - 3)|$$

Find the value(s) of m for which this equation has exactly 2 solutions.