Imię i nazwisko:
Klasa:
Grupa 1
Wynik:

(P) Question 1 ***(1 pt)***
The angle between the line $x + y - 1 = 0$ and the x-axis is equal to:

A. 45° B. 60° C. 120° D. 135°

(P) Question 2 ***(1 pt)***
If α lies in the fourth quadrant and $\cos\alpha = \frac{2}{5}$, then:

A. $\sin\alpha = \frac{3}{5}$ B. $\sin\alpha = -\frac{3}{5}$ C. $\sin\alpha = \frac{\sqrt{21}}{5}$ D. $\sin\alpha = -\frac{\sqrt{21}}{5}$

(P) Question 3 ***(1 pt)***
The vertex of the graph of the function $f(x) = -2(x+1)^2 - 3$ has coordinates:

A. $(-1, -3)$ B. $(1, -3)$ C. $(-1, 3)$ D. $(1, 3)$

(P) Question 4 ***(1 pt)***
The number of sides of a convex polygon with 54 diagonals is equal to

A. 10 B. 11 C. 12 D. 13

(R) Question 5 ***(1 pt)***
Let x_1 and x_2 be the solutions to $x^2 - 17x + 31 = 0$. Then $\dfrac{1}{x_1} + \dfrac{1}{x_2} =$

A. $\dfrac{17}{31}$ B. $-\dfrac{17}{31}$ C. $\dfrac{31}{17}$ D. $-\dfrac{31}{17}$

(P) Question 6 ***(2 pts)***

Solve the inequality:

$$3x^2 - 13x - 10 \geqslant 0$$

(P) Question 7 ***(4 pts)***

The square of the sum of two consecutive even numbers is 48 greater than the sum of squares of these numbers. Find these numbers.

(R) Question 8 ***(2 pts)***

Find the number of solutions to the equation $(k-2)x^2+x-3=0$ depending on the parameter k.

(R) Question 9 ***(3 pts)***

Find the value of m for which the sum of squares of the solutions to the equation $x^2-mx+m-1=0$ is the least.

(R) Question 10 ***(4 pts)***

Find the values of p for which the equation $px^2 - (p^2 + 4)x + 4p = 0$ has two distinct natural solutions.