[School Name]

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Multiple Choice (Choose the best answer):

1. Which of the following is a quadratic equation?

a) x + 5 = 10

b) 2x² + 3x - 5 = 0

c) x³ - 4x² + 2x = 1

d) √x + 1 = 7

2. What is the solution to the equation 3x + 2 = 11?

a) x = 3

b) x = 4

c) x = 5

d) x = 6

3. Simplify the expression: (x + 2)(x - 3)

a) x² - x - 6

b) x² + x - 6

c) x² - 5x - 6

d) x² + 5x - 6

4. What is the discriminant of the quadratic equation 2x² - 5x + 1 = 0?

a) 17

b) 21

c) 25

d) -17

Short Answer:

1. Solve the following equation for x: 2(x + 3) - 4 = 8

2. Factor the expression: x² - 9

3. Find the roots of the quadratic equation: x² - 4x + 3 = 0

4. Simplify the following rational expression: (x² + 2x) / (x² - 4)

5. Solve the system of equations:

y = 2x + 1

3x + y = 9

6. Write the equation of the line passing through the points (2, 3) and (4, 7).

7. Explain the difference between an expression and an equation.

Long Answer:

1. Solve the quadratic equation by completing the square: x² + 6x - 7 = 0

2. Graph the following quadratic function and identify its vertex, axis of symmetry, and intercepts: y = x² - 4x + 3

Word Problem:

A rectangular garden is 10 meters longer than it is wide. If the area of the garden is 144 square meters, what are the dimensions of the garden?