

Assignment

Write

Describe the solution to a system of equations.

Remember

You can solve quadratic equations using factoring, completing the square, the Quadratic Formula, and graphing.

Practice

1. Solve each equation.

a. $0 = x^2 - 7x - 18$

b. $x^2 + 10x = 39$

c. $0 = x^2 - 10x + 12$

d. $2x^2 + 4x = 0$

e. $3x^2 - 22x + 7 = 0$

2. Determine the roots of each equation. Check your solutions.

a. $y = x^2 + 9x + 3$

b. $y = 3x^2 + 24x - 6$

3. Kian is driving 48 miles per hour and is speeding up to merge onto the highway. He gradually accelerates at a rate of 7 miles per hour for several seconds. The formula $s = ut + \frac{1}{2}at^2$ can be used to calculate the distance, s , an object travels in t seconds. In this formula, u represents the initial velocity, and a represents a constant acceleration.

a. Substitute the initial velocity and constant acceleration into the formula to write an equation to represent the distance Kian travels.

b. Use the Quadratic Formula to determine the roots of the equation. What do the roots represent in the context of the problem situation? Explain your reasoning.

4. Determine the solution to each system of equations

a.
$$\begin{cases} y = x^2 - 4x - 8 \\ y = -x^2 - 10x + 12 \end{cases}$$

b.
$$\begin{cases} y = 2x^2 + 3x - 2 \\ y = -2x^2 + 7x - 3 \end{cases}$$

Stretch

The function g is defined by $g(x) = x^2 - 3x - 10$. If $g(x + 3) = x^2 + bx - c$, what are the values of b and c ? Show your work and justify your answer.

Review

1. Consider the function $f(x) = (x + \frac{1}{2})(x - \frac{3}{4})$.
 - a. Identify the form of the function as factored, general, or vertex.
 - b. Identify the zeros and axis of symmetry of the function.
2. Write a quadratic equation for the parabola that passes through the point $(-2, 12)$ with roots $(-5, 0)$ and $(-3, 0)$.
3. Solve each equation for the unknown value.
 - a. $|2x + 3| = 25$
 - b. $9 = |-3x - 1| - 7$