Pre-Calculus 11

Quadratic Equations Assignment

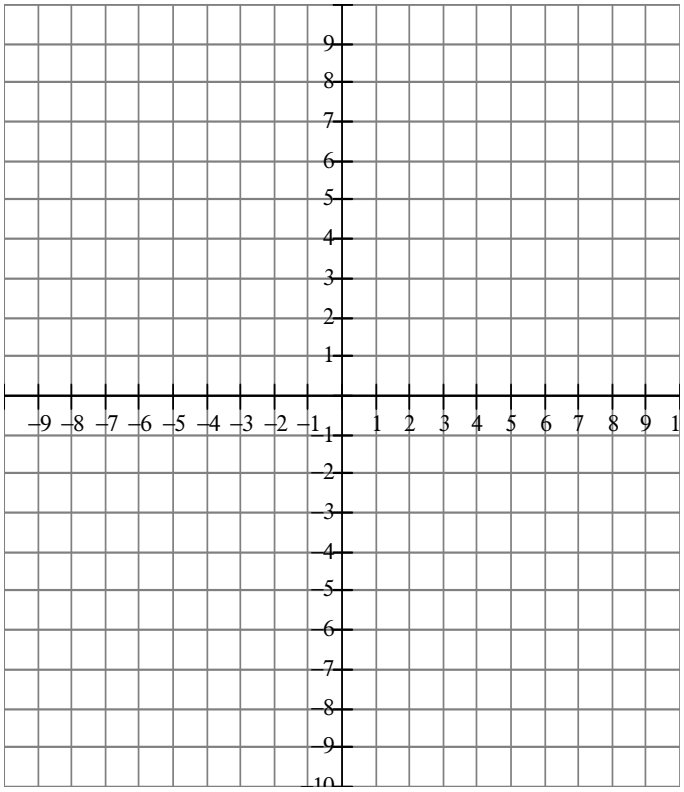
Name:_____

Date:_____

Block:____

1. Solve the following by graphing.

   $x^2 + 5x + 4 = 0$



2. Solve each equation by factoring.

   (a) $x^2 + 7x + 10 = 0$

   (b) $x^2 - x = 6$

(c) $8x^2 = 72x - 144$

(d) $5x^2 + 20 = -25x$

(e) $4x^2 + 8x + 3 = 0$

(f) $2x^2 - 5x = 0$

3. Solve each equation by taking square roots.

(a) $8x^2 - 7 = 249$

(b) $9x^2 - 10 = 90$

4. Write a quadratic equation that has the following solutions.

(a) -5, 7

b) $2, \frac{4}{3}$

c) $1 - \sqrt{5}, 1 + \sqrt{5}$

5. Solve each equation by completing the square.

   (a) $3x^2 - 12x + 9 = 0$

   (b) $x^2 - 12x + 31 = 0$

6. Use the discriminant to determine the number of solutions to each question.

   (a) $2x^2 - 9x + 4 = 0$

   (b) $-6x^2 + 7x - 5 = 0$

   (c) $-6x^2 - 3x + 9 = 0$

   (d) $-x^2 - 6x - 9 = 0$

7. Solve each equation with the quadratic formula.

   (a) $4x^2 - 3x - 27 = 0$

   (b) $x^2 - 10x + 22 = 0$

8. Solve the following.

   (a) $x - 1 = \frac{2}{x}$

   (b) $x(2x - 3) + 4(x + 1) = 2(3 + 2x)$

9. When a football is kicked, its height can be modeled by the function $h(d) = -0.1d^2 + 4.8d$, where d is the horizontal distance that the ball has travelled from the kicker, in metres, and h is the height of the ball, in metres. Find the distance from the kicker that the ball lands on the ground again. Show all work. (4 marks)

10. A temporary rectangular dog pen measures 6 feet by 8 feet. Bree wants to triple the area of the pen by moving each wall by the same amount.

a) Sketch and label a diagram for this situation. (2 marks)

b) Write an equation and solve it to find the dimensions of the new pen. Show all work. (3 marks)

6. The length of the base of a rectangular prism is 2 m more than its width, and the height of the prism is 15 m. Find the dimensions of the base of the rectangular prism if its volume is 2145 $m^{3.}$