Algebra 2 Chapter 5 Pre-Test

1.) (5 pts total, 2.5 pts each) Rewrite each function in standard form. Indicate whether the function is a quadratic.

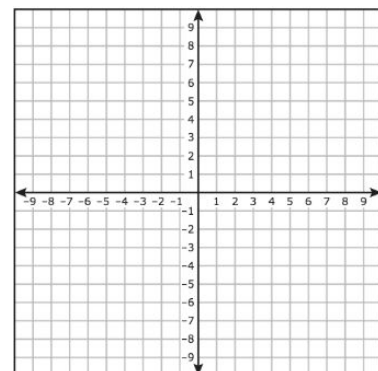   a) $(x - 7)(x - 7)$

    b) $2(x + 2)^2 - 2x^2$

2.) (5 pts) Find a quadratic model for the following set of values:
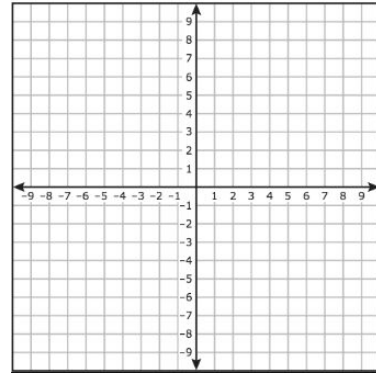
  $(-4, 8), (-1, 5), (1, 13)$

3.) (10 pts total, 5 pts each) Graph each parabola. Label the vertex and axis of symmetry.

    a) $x^2 - 4x + 10$

b) $2x^2 + 12x + 17$

4.) (20 pts total, 5 pts each) Factor each expression.

a) $x^2 + 5x - 14$

b) $x^2 + 7x + 12$

c) $2x^2 - 13x + 15$

d) $3x^2 - 5x - 12$

5.) (10 pts total, 2.5 pts each) Evaluate the discriminant of the equation. Indicate the number of real roots for each.

a) $x^2 - 4x + 4$

b) $-2x^2 + 6x - 14$

c) $x^2 + 9x + 18$

d) $2x^2 + 11x - 21$

6.) (15 pts total, 7.5 pts each) Solve using the Quadratic Equation.

    a) $x^2 = 3x + 2$
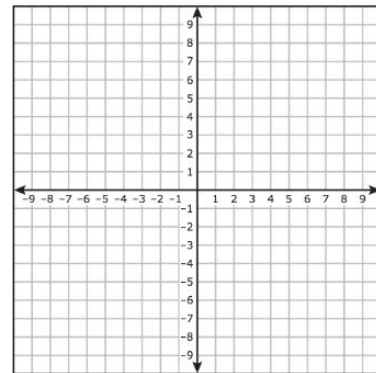
    b) $3x^2 - 5x = -12$

7.) (15 pts total, 7.5 pts each) Place each equation in vertex form by completing the square. Please show all your work.

    a) $x^2 = 5x + 14$

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

8.) (20 pts total, 10 pts each) Graph each equation **completely**. Plot all roots, intercepts, and the vertex.

a) $x^2 + 6x + 9$

b) $x^2 - 4x - 5$