Quadratic Equations 2.3

Algebra 2

1) What is a y-intercept? What is the first step in finding one? Why?

2) What is an x-intercept? What is the first step in finding one? Why?

3) What is a root in the context of graphing equations?

4) What does the zero-product property say?

Use the zero-product property to find the roots of each equation. Graph the following quadratic equations with the vertex and intercepts.

5) $f(x) = x^2 - 10x + 21$

6) $f(a) = a^2 + 2a$

7) $f(v) = 4v^2 - 12v + 9$

8) $y = x^2 - 9$

Factor the following polynomials.

9) $x^2 + 8x + 16$

10) $p^2 - 10p + 25$

11) $x^2 - 14x + 49$

12) $x^2 + 12x + 36$

Find the value of c that will make the following polynomials a perfect square.

13) $x^2 + 4x + c$

14) $a^2 - 2a + c$

15) $d^2 + 16x + c$

16) $x^2 - 26x + c$

Graph the following equations by doing the following: (Use a different sheet if you need more room.)

-complete the square to put the equations in standard form, and find the vertex of each parabola.

-find the roots by setting y = 0, and isolating x.

17) $f(x) = x^2 + 6x + 5$

18) $f(d) = d^2 - 10d + 9$

19) $f(x) = x^2 + 4x - 5$

Use the quadratic formula to find the roots of the following functions. Graph each function with its' intercepts.

20) $f(x) = x^2 + 8x + 15$

21) $f(k) = k^2 - 6k - 1$

22) $f(z) = 2x^2 + 9x + 10$

23) $f(x) = x^2 - 16$

24) $f(x) = x^2 + 16$

25) $f(t) = 4t^2 + 20t + 25$