Math-3 Name_____ ID: 1

SM3-A HW #3-1 (Analyze Polynomials)

Period____

1) What does it mean to "solve" a single variable equation?

2) a) Give an example of a vertex form quadratic equation.

   b) Without converting it to another form, what information about the graph does the equation provide? (4 things)

3) a) Give an example of a standard form quadratic equation.

   b) Without converting it to another form or making any calculations, what information about the graph does the equation provide? (4 things)

4) a) Give an example of an intercept form quadratic equation.

   b) Without converting it to another form or making any calculations, what information about the graph does the equation provide? (4 things)

5) Without graphing a standard form quadratic equation, how can you figure out what the vertex is?

6) Without graphing an intercept form quadratic equation, how can you figure out what the vertex is?

7) a) Give an example of a standard form quadratic whose zeroes CAN be found by "taking square roots."

   b) Give an example of a standard form quadratic equation whose zeroes CANNOT be found by taking square roots.

8) Without graphing a vertex form quadratic equation, how can you figure out what the x-intercepts are?

Find all zeroes

9) $(2x^2 + 1)(x^2 + 5) = 0$

10) $(2x^2 - 3)(x^2 - 2)(x^2 + 2) = 0$

11) $(x^2 + 9)(5x^2 - 7) = 0$

12) $x(x - 3)(5x^2 - 2) = 0$

For problems 13 through 16:
a) Describe the "end behavior" (up on left, down on right, etc.)

b) Build a table that predicts the total number of zeroes, the number of real zeroes, and the number of imaginary zeroes.

13) $-2x^4 + 8x^2 - 9 = 0$

14) $4x^5 - 8x^2 = 0$

15) $-3x^3 - 5x^2 - 5x + 25 = 0$

16) $x^2 + x - 6 = 0$

17) If you determine that a zero of a polynomial is $3 - 2i$, the complex conjugates theorems states another zero is required. What is the zero?

18) If you determine that a zero of a polynomial is: $5 - 6\sqrt{3}$, the irrational conjugates theorems states another zero is required. What is the zero?