



Name _____ Date _____ Period _____

SOLVING POLYNOMIAL FUNCTIONS WORKSHEET #1

- 1) The Fundamental Theorem of Algebra says the number of zeros must equal the degree of the polynomial.
- 2) Use the rational roots theorem to determine possible rational zeros of the polynomial.
- 3) Try factoring the polynomial or use synthetic division if a zero is given. Write in factored form.
- 3) Set each factor equal to zero and solve for x .
- 4) The quadratic formula can be used to find imaginary zeros when the quadratic does not factor.

Find the number of zeros of the polynomial function. Use technology to state the number of rational zeros and imaginary zeros.

1) $f(x) = 8x^3 + 14x^2 + 11x + 3$

2) $f(x) = x^5 - 2x^4 - 12x^3 - 12x^2 - 13x - 10$

3) $f(x) = 6x^3 + 5x^2 - 9x + 2$

4) $f(x) = x^4 - 3x^3 + x^2 - 3x$

List all of the possible rational zeros of each function.

5) $f(x) = 4x^5 + x^4 - 2x^3 - 5x^2 + 8x + 16$

6) $g(x) = 3x^3 - 4x + 10$

7) $f(x) = x^4 + x^3 - 19x^2 + 11x + 30$

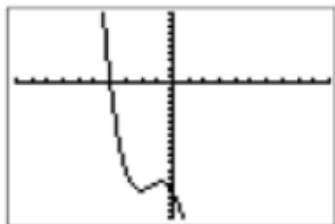
8) $g(x) = 2x^4 + 3x^2 - x + 15$

Solve each polynomial (use the given factor if one is provided). Show all work.

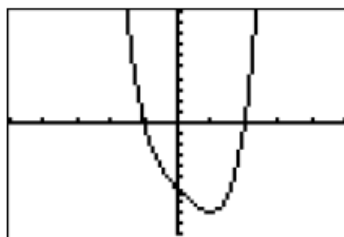
9) $y = 2x^3 + 3x^2 - 8x + 3; x + 3$

10) $y = 10x^3 - 15x^2 - 16x + 12; x - 2$

11) $x^3 - 4x^2 + 4x - 16 = 0$



12) $x^4 - x^3 + x^2 - 3x - 6 = 0$



13) $x^3 + x^2 - 9x - 9 = 0$

14) $2x^4 + 4x^3 - 4x^2 - 8x = 0$