

Name: \_\_\_\_\_

Unit 3: Power, Polynomials, and  
Rational Functions

Date: \_\_\_\_\_ Per: \_\_\_\_\_

Homework 8: Irrational Zeros &  
Descartes Rule of Signs

**\*\* This is a 2-page document! \*\***

**Directions:** List all possible rational zeros. Then, find all the real zeros.

1.  $f(x) = x^4 - 25x^2 + 24$

2.  $f(x) = 5x^3 - x^2 - 15x + 3$

3.  $f(x) = 3x^3 + 2x^2 - 24x - 16$

4.  $f(x) = 2x^4 - 9x^2 + 4$

5.  $f(x) = 5x^3 - 20x^2 + x - 4$

6.  $f(x) = 3x^4 - 35x^2 + 72$

Directions: Find the zeros. Simplify all irrational and complex solutions. Then, give the complete factorization of the polynomial function. **\*use Rational Root theorem\***

7.  $f(x) = 4x^3 + 3x^2 + 36x + 27$

8.  $f(x) = 2x^3 + 7x^2 + 16x + 56$

9.  $f(x) = x^4 - 256$

10.  $f(x) = x^4 + 24x^2 + 80$

11.  $f(x) = 3x^3 + 3x^2 - 6$

12.  $f(x) = 2x^3 + 2x^2 - 2x + 30$