

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

Unit 5: Polynomial Functions



Date: \_\_\_\_\_ Bell: \_\_\_\_\_

Homework 5: Solving Polynomial Equations

**Directions:** Solve each equation by **factoring**. Simply all irrational and complex solutions.

1.  $12x^3 - 3x^2 = 0$

2.  $9x^4 - 16 = 0$

3.  $2x^4 = 9x^2$

4.  $x^3 + 512 = 0$

5.  $8x^3 - 125 = 0$

6.  $81x^4 = 3x$

7.  $2x^3 - 16x^2 - 40x = 0$

8.  $x^4 - 16x^2 = x^2 + 18$

9.  $4x^4 + 35x^2 - 9 = 0$

10.  $x^3 + 3x^2 = 24x + 72$

11.  $2x^3 - 5x^2 + 40x - 100 = 0$

12. The population of a species is modeled by the equation  $p(t) = -t^4 + 72t^2 + 225$ , where  $t$  is the number of years. Find the approximate number of years until the species is extinct.