

Name: \_\_\_\_\_  
Algebra II Honors

Date: \_\_\_\_\_  
Graphing Polynomial Functions Worksheet

I. For each of the following, a) give the x-intercepts as ordered pairs, b) the y-intercepts as an ordered pair and c) graph. Pay close attention to the order of the intercepts and also label on the graph how it should look at that intercept (s, t, or cc).

1.  $P(x) = x^2 + 5x - 6$

2.  $P(x) = x^4 - 4x^2$

3.  $P(x) = x^3 + 2x^2 - 3x$

4.  $P(x) = x^4 - 17x^2 + 16$

5.  $P(x) = (x + 1)^2$

6.  $P(x) = (x - 2)^3$

7.  $P(x) = (x - 1)(x + 3)^4$

8.  $P(x) = (x + 1)(x - 2)^2(x - 1)^3$

9.  $P(x) = (x - 3)^2(x - 2)^2$

II. Describe the end behaviors of the graph and then graph it labeling the zeroes. Also label each time it crosses the x-axis with s, t, or cc.

1.  $y = -3(x + 1)(x - 3)^2(x + 2)$

2.  $y = (x - 2)^3(x - 1)(x + 3)^2$

3.  $y = -x^2(x + 1)^2$

4.  $y = 4(2x - 3)(x - 1)^3$

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

6.  $y = -4(x - 2)(x + 2)$

7.  $y = (x - 2)(2x - 1)(x + 1)^3$

8.  $y = -(x - 6)^2(x - 4)(x - 1)^3$

9.  $y = x^3 - 6x^2 + 9x$

10.  $y = x^4 - 13x^2 + 36$