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

Honors Math III Sketching Polynomial Functions

**Vocabulary**

Turning Point:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree of a function:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Local Max\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Absolute Max\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Local Min\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Absolute Min\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

End behavior:

**For even degree polynomials, as and as**

**For odd degree polynomials, as and as**

Roots/x-intercepts/zeros (all mean same thing)

What does it do if its multiplicity is 1?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What does it do if its multiplicity is even?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What does it do if its multiplicity is odd?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How do I start the graph?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**RULE: If a function has degree \_\_\_\_\_\_\_\_\_ then the maximum number of roots (x-intercepts) is \_\_\_\_\_\_\_\_ and the function has a maximum of \_\_\_\_\_\_\_\_\_\_ turning points.**

1. P(x) = x²(x-2)(x+2)

a. x-intercept(s):\_\_\_\_\_\_\_\_\_\_\_\_\_

b. y-intercept:\_\_\_\_\_\_\_\_\_\_\_\_\_

c. End Behavior: \_\_\_\_\_\_\_\_\_\_\_\_

d. Behavior at the zeros (bounce/cross):

e. Possible number of turning points:\_\_\_\_\_\_\_\_

2. 

a. x-intercept(s):\_\_\_\_\_\_\_\_\_\_\_\_\_

b. y-intercept:\_\_\_\_\_\_\_\_\_\_\_\_\_

c. End Behavior: \_\_\_\_\_\_\_\_\_\_\_\_

d. Behavior at the zeros:

e. Possible number of turning points:\_\_\_\_\_\_\_\_

3. 

a. x-intercept(s):\_\_\_\_\_\_\_\_\_\_\_\_\_

b. y-intercept:\_\_\_\_\_\_\_\_\_\_\_\_\_

c. End Behavior: \_\_\_\_\_\_\_\_\_\_\_\_

d. Behavior at the zeros:

e. Possible number of turning points:\_\_\_\_\_\_\_\_

4. 

a. x-intercept(s):\_\_\_\_\_\_\_\_\_\_\_\_\_

b. y-intercept:\_\_\_\_\_\_\_\_\_\_\_\_\_

c. End Behavior: \_\_\_\_\_\_\_\_\_\_\_\_

d. Behavior at the zeros:

e. Possible number of turning points:\_\_\_\_\_\_\_\_

**Use the graphs to fill in the blanks below:**

**Number T Pts: Number T Pts: Number T Pts:**

**Local Max: Local Max: Local Max:**

**Local Min: Local Min: Local Min:**

**Absolute Max: Absolute Max: Absolute Max:**

**Abs. Min.: Abs. Min.: Abs. Min.:**

**Least Degree: Least Degree: Least Degree:**