Algebra 2 **Poly - _____**

Chapter 5 – Polynomials

5.2 – Worksheet – Graphing Polynomials **Date: _____ Period: _____**

Part One – Identifying End Behavior

For each of the following identify the Lead Degree, the Lead Coefficient, and the End Behavior.

1.) $t(x) = 2x - 5$

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

$as\ x \to \infty, t(x) \to$ _____

$as\ x \to -\infty, t(x) \to$ _____

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

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

$as\ x \to \infty, a(x) \to$ _____

$as\ x \to -\infty, a(x) \to$ _____

3.) $g(x) = -x^4 + 5x^3 + 7$

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

$as\ x \to \infty, g(x) \to$ _____

$as\ x \to -\infty, g(x) \to$ _____

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

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

$as\ x \to \infty, m(x) \to$ _____

$as\ x \to -\infty, m(x) \to$ _____

5.) $n(x) = \frac{1}{2}x^6 + 2x^2 - 3x + 4$

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

$as\ x \to \infty, n(x) \to$ _____

$as\ x \to -\infty, n(x) \to$ _____

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

Name: _____

Leading Degree: Even or Odd

Leading Coefficient: Positive or Negative

End Behavior:

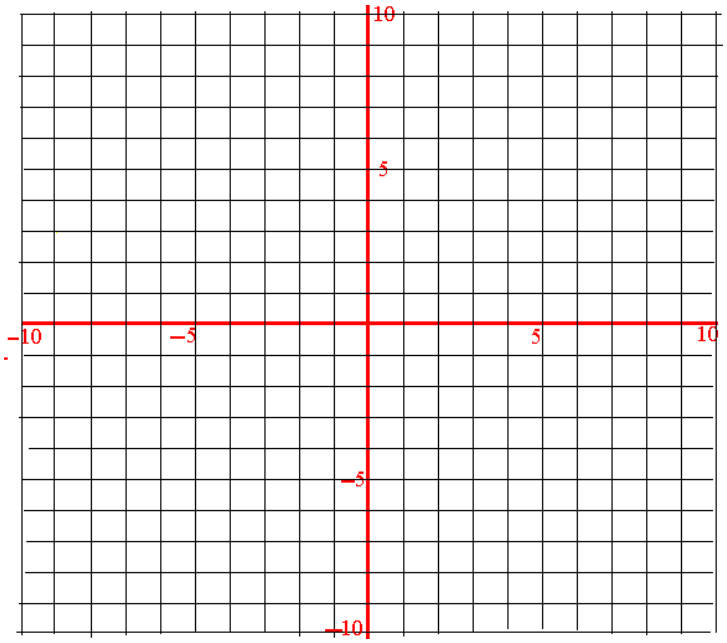
$as\ x \to \infty, f(x) \to$ _____

$as\ x \to -\infty, f(x) \to$ _____

Part Two – Sketching Polynomials

7.) $j(x) = 2x^3 - 9x^2 + 7x$

# of Solution(s): _____



Zero(s): _____

End Behavior:

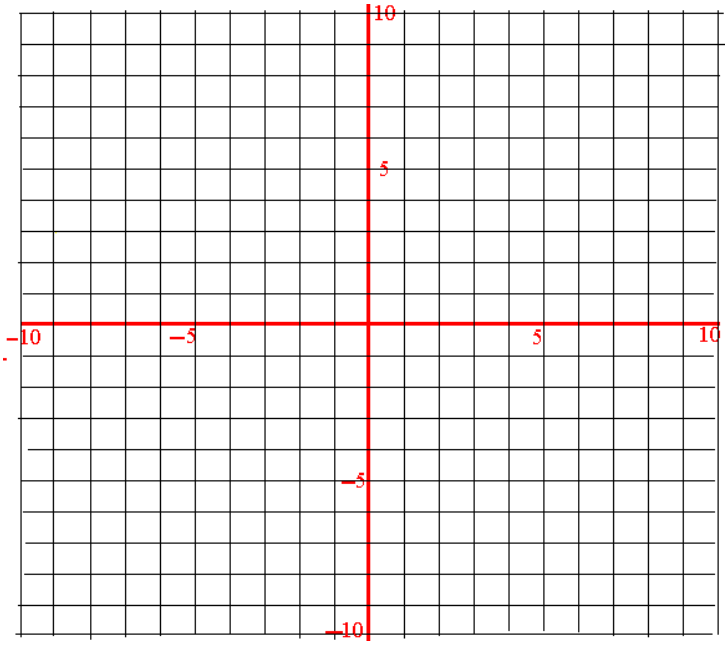
$as\ x \to \infty, j(x) \to$ _____

$as\ x \to -\infty, j(x) \to$ _____

x				
$j(x)$				

8.) $h(x) = 3x^4 - 27x^2$

# of Solution(s): _____



Zero(s): _____

End Behavior:

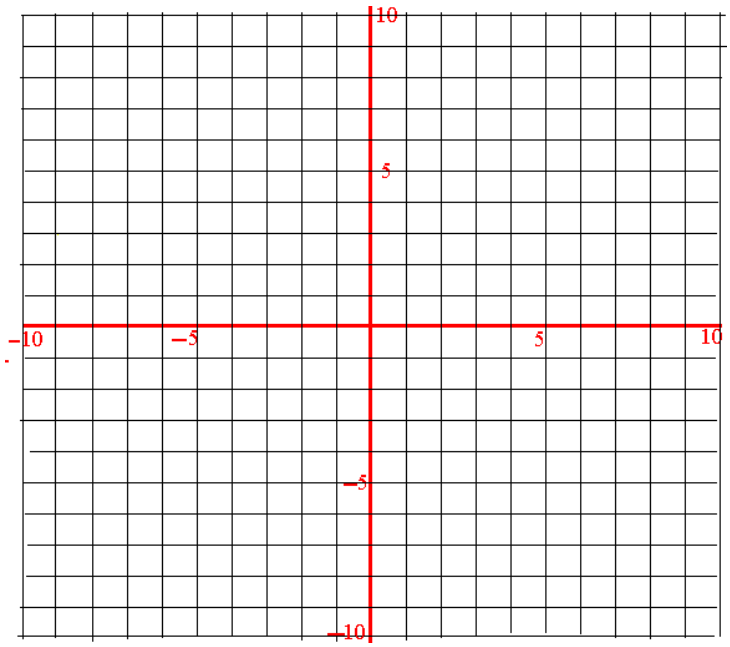
$as\ x \to \infty, h(x) \to$ _____

$as\ x \to -\infty, h(x) \to$ _____

x				
$h(x)$				

9.) $b(x) = -x^4 - 16x^2$

# of Solution(s): _____



Zero(s): _____

End Behavior:

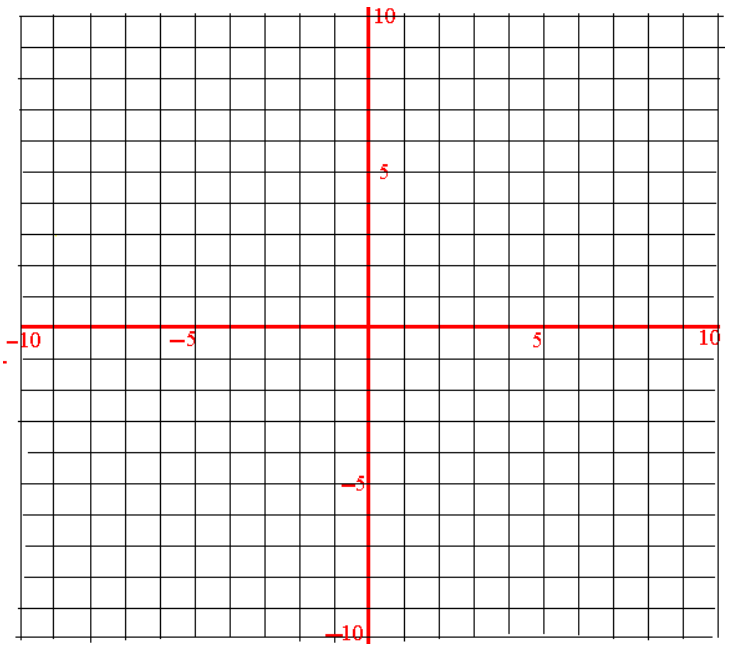
$as\ x \to \infty, b(x) \to$ _____

$as\ x \to -\infty, b(x) \to$ _____

x				
$b(x)$				

10.) $f(t) = 4t^3 - 5t^2 - 6t$

# of Solution(s): _____



Zero(s): _____

End Behavior:

$as\ x \to \infty, f(t) \to$ _____

$as\ x \to -\infty, f(t) \to$ _____

t				
$f(t)$				

Part Three – Identifying Relative Maximums and Minimums

Given each of the polynomial functions below, sketch and identify the key information.
(You may use your Calculator – Some key information may be off the graph)

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

Lead Coefficient: Positive or Negative (circle one)

Degree: Even or Odd (Circle One)

Relative Maximum(s): _____

Relative Minimum(s): _____

Zero(s): _____

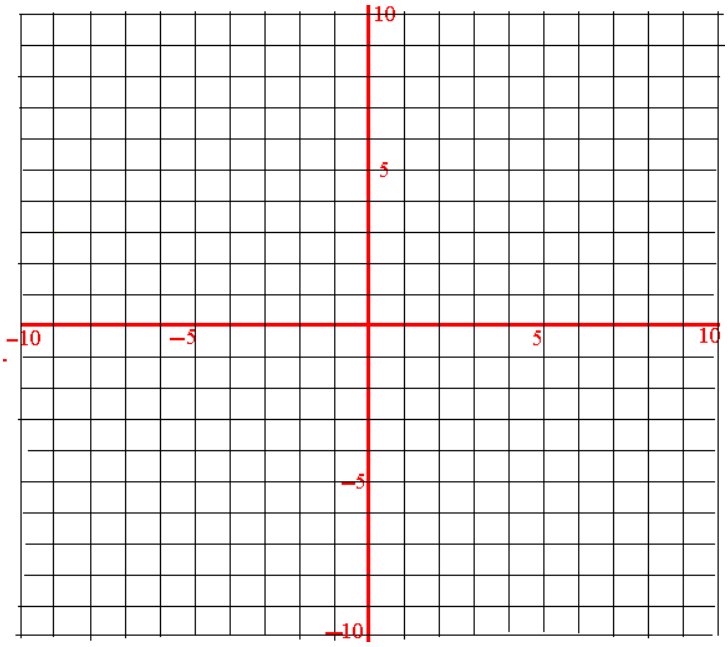
Y-intercept: _____

Interval Increasing: _____

Interval Decreasing: _____

End Behavior:

$as\ x \to \infty, f(x) \to$ _____
$as\ x \to -\infty, f(x) \to$ _____



12.) $f(x) = x^4 - 13x^2 + 36$

Lead Coefficient: Positive or Negative (circle one)

Degree: Even or Odd (Circle One)

Relative Maximum(s): _____

Relative Minimum(s): _____

Zero(s): _____

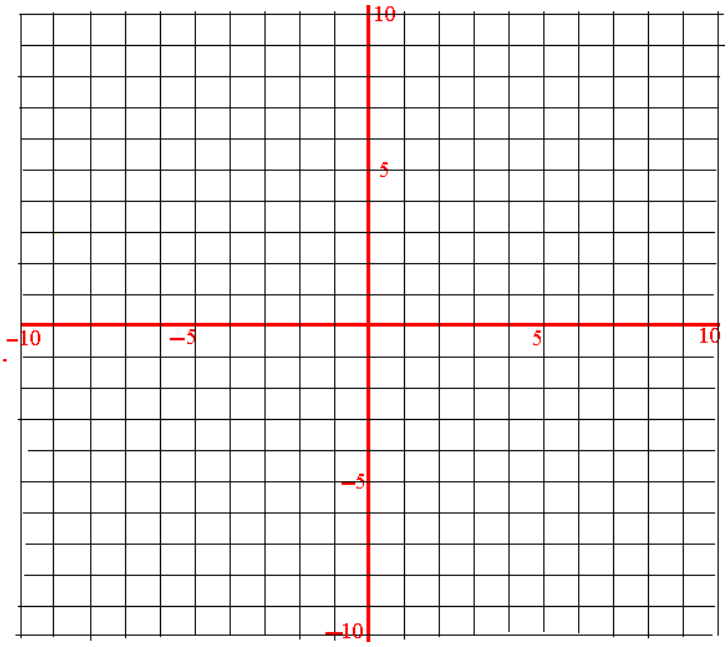
Y-intercept: _____

Interval Increasing: _____

Interval Decreasing: _____

End Behavior:

$as\ x \to \infty, f(x) \to$ _____
$as\ x \to -\infty, f(x) \to$ _____



Evaluate each of the polynomials.

13.) If $f(x) = 2x^2 - 3x + 2$ find $f(-3)$.

14.) If $f(x) = 2x^2 - 3x + 2$ find $f(m + 2)$.

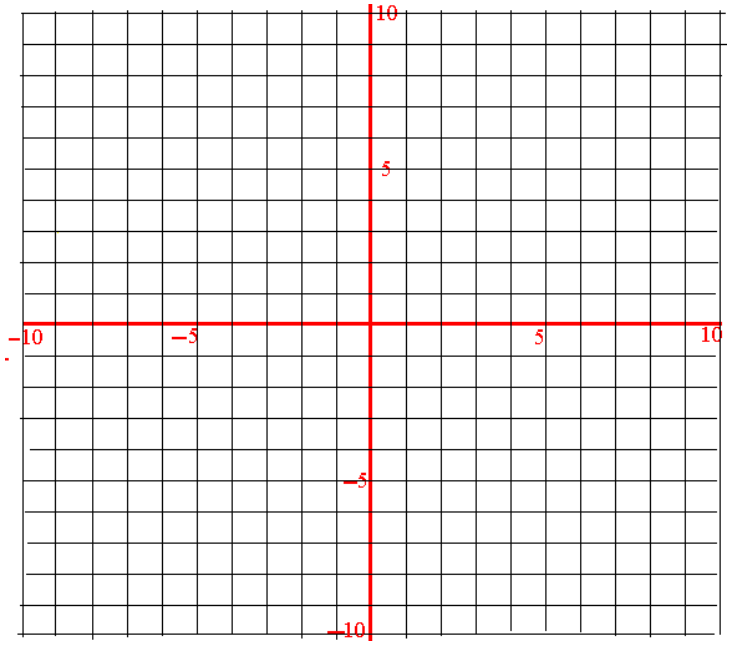
15.) If $h(x) = -4x^{-3} + 4x^{-2}$ find $h(-2)$.

16.) If $h(x) = -4x^{-3} + 4x^{-2}$ find $h(2t^3)$.

Part Four – Sketching Polynomials

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

# of Solution(s): _____



Zero(s): _____

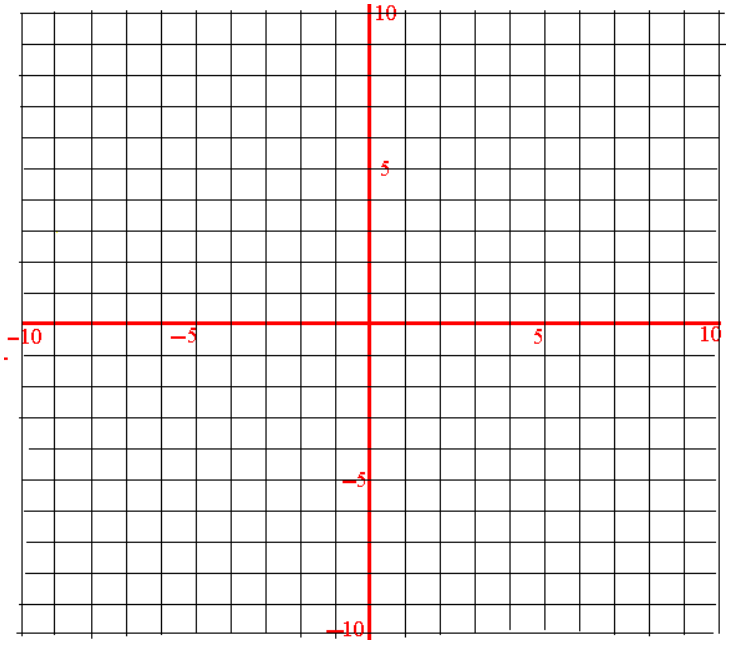
End Behavior:

$as\ x \to \infty, f(x) \to$ _____

$as\ x \to -\infty, f(x) \to$ _____

18.) $f(x) = 2x^3 - 32x$

# of Solution(s): _____



Zero(s): _____

End Behavior:

$as\ x \to \infty, f(x) \to$ _____

$as\ x \to -\infty, f(x) \to$ _____