

Name _____
Mr. Schlansky

Date _____
Algebra II

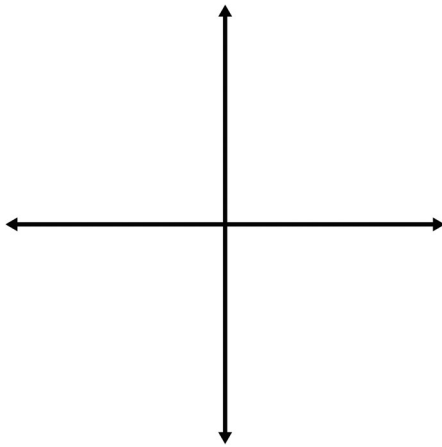
Sketching Polynomial Functions

1. $f(x) = x^3 + 2x^2 - 9x - 18$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

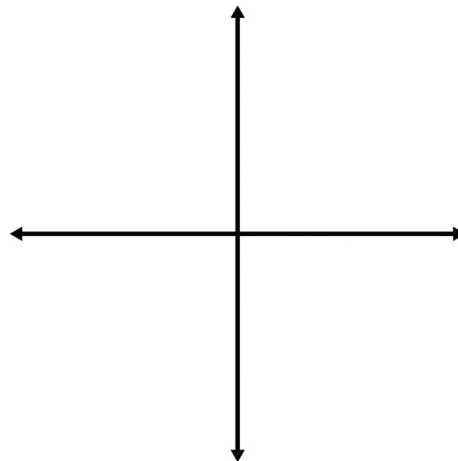
Local extrema:

2. $f(x) = x^4 - 10x^2 + 9$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

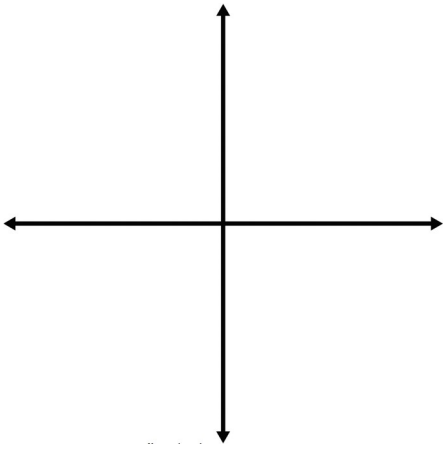
Local extrema:

3. $p(x) = -x^3 - 3x^2 + 4x + 12$

Degree:

y-intercept:

x-intercepts (zeros):



Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

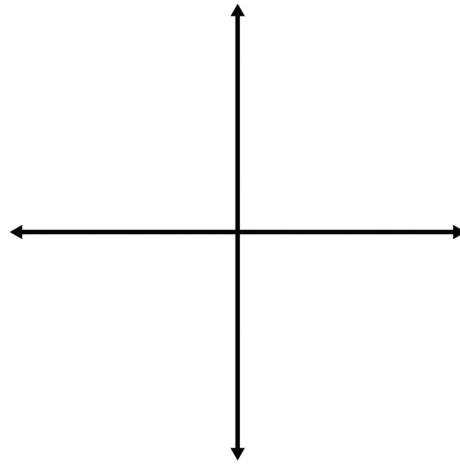
Local extrema:

4. $f(x) = -x^4 + 3x^3 + 10x^2$

Degree:

y-intercept:

x-intercepts (zeros):



Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

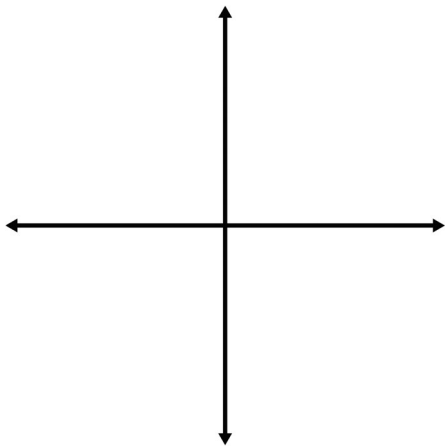
Local extrema:

5. $p(x) = 4x^3 - 12x^2 - 9x + 27$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

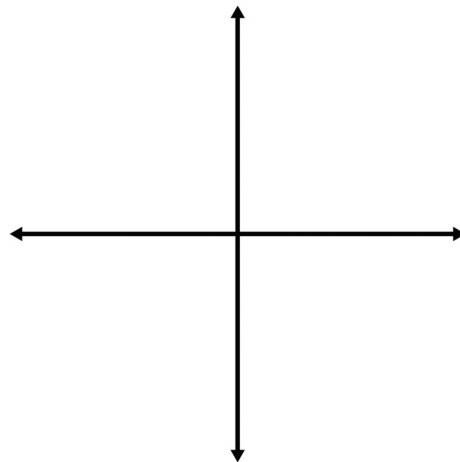
Local extrema:

6. $h(x) = x^6 - 5x^4 + 4x^2$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

Intervals where function is positive:

Intervals where function is negative:

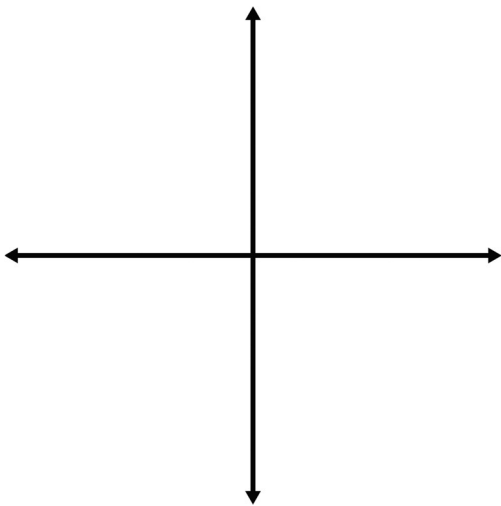
Local extrema:

7. $f(x) = x^3 - 2x^2 - 3x$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

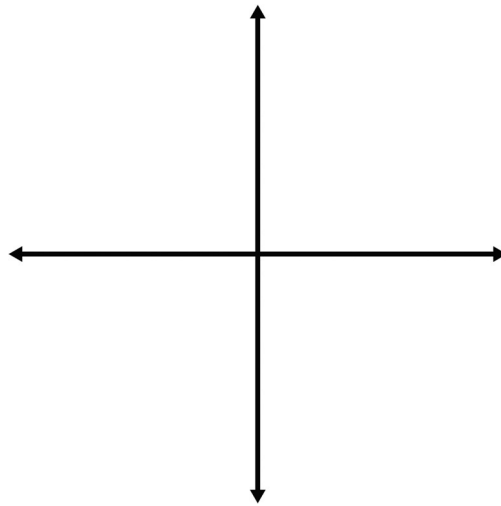
Local extrema:

8. $g(x) = -2x^4 - x^3 + 3x^2$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

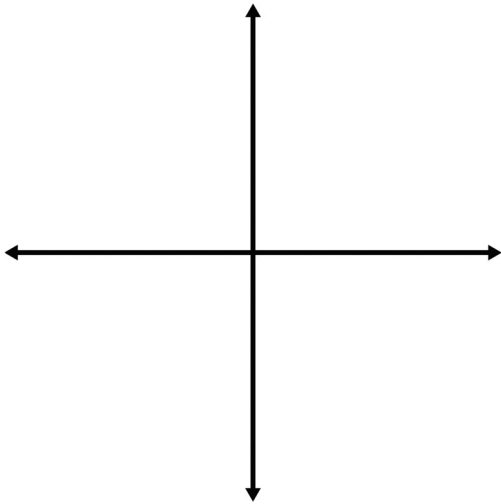
Local extrema:

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

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

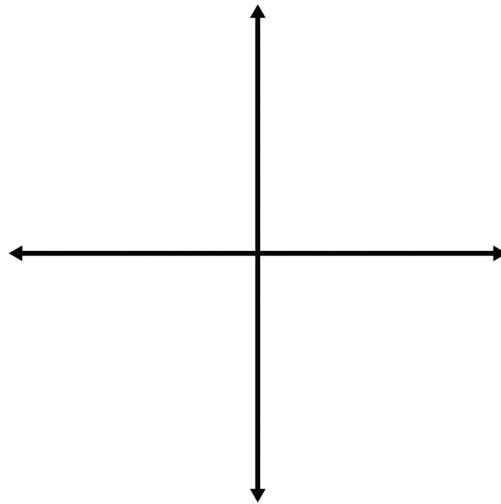
Local extrema:

10. $g(x) = -x^4 + 2x^3 + 4x^2 - 8x$

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

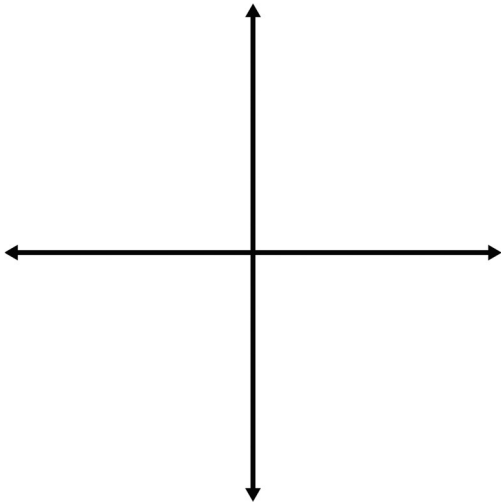
Local extrema:

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

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

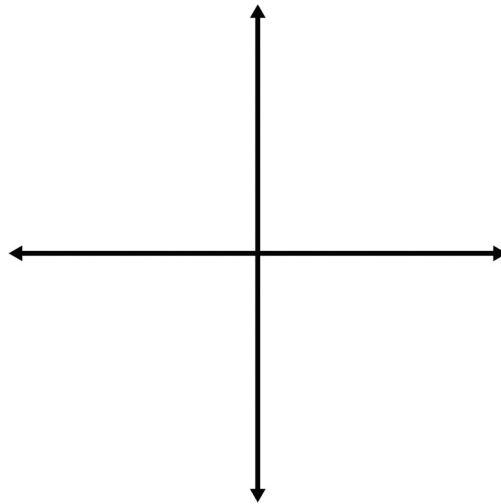
Local extrema:

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

Degree:

y-intercept:

x-intercepts (zeros):



End Behavior:

$$x \rightarrow -\infty, f(x) \rightarrow$$

$$x \rightarrow \infty, f(x) \rightarrow$$

Intervals where function is increasing:

Intervals where function is decreasing:

Local extrema: