

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

Calculus I - Graphing Review - **In Class**

SKETCH the graph of the following POLYNOMIAL functions.

Higher Order Polynomials. Identify the left and right behavior, the maximum number of possible turning points, the maximum number of possible x-intercepts, and sketch one possible graph.

1)  $y = 3x^3 + 2x - 5$

2)  $y = -2x^4 + 7x^3 - 3x + 9$

Graphing Calculator Higher Order Polynomials. Graph the polynomial on your calculator and determine the exact value for one real zero. Use that value with synthetic division to determine the remaining real zeros.

3)  $y = x^3 - 6x^2 - 7x + 42$

Absolute Value. Use translation of graphs to sketch the following.

4)  $y = |3x - 5| + 2$

5)  $y = -|x + 4| - 7$

Circles. Sketch the graph labeling the center.

6)  $x^2 + y^2 = 9$

7)  $x^2 - 6x + y^2 - 12y = 55$

Square Roots. Sketch the graph, labeling the "start" point(s).

8)  $y = \sqrt{2x + 1}$

9)  $y = -\sqrt{3 - 2x}$

10)  $y = \sqrt{25 - x^2}$

Rational functions. Sketch the graph, labeling the vertical and horizontal asymptotes.

$$11) y = \frac{1}{x-3}$$

$$12) y = \frac{x}{x+3}$$

Exponential functions. Sketch the graph, labeling any horizontal asymptotes.

$$13) y = 3^x$$

$$14) y = 2^x + 1$$

Logarithmic functions. Sketch the graph, labeling any vertical asymptotes.

$$15) y = \log_3 x$$

$$16) y = \ln 2x + 1$$

Split (Piecewise) Functions.

$$17) y = \begin{cases} x, & x \leq 0 \\ 2, & x > 0 \end{cases}$$

$$18) y = \begin{cases} x + 1, & x < 1 \\ x^2, & x \geq 1 \end{cases}$$

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

Calculus I - Graphing Review - **Homework**

SKETCH the graph of the following POLYNOMIAL functions.

Higher Order Polynomials. Identify the left and right behavior, the maximum number of possible turning points, the maximum number of possible x-intercepts, and sketch one possible graph.

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

2)  $y = 7x^3 - 3x + 9$

Graphing Calculator Higher Order Polynomials. Graph the polynomial on your calculator and determine the exact value for one real zero. Use that value with synthetic division to determine the remaining real zeros.

3)  $y = x^3 + 2x^2 - 19x - 38$

Absolute Value. Use translation of graphs to sketch the following.

4)  $y = |5x - 1| + 2$

5)  $y = -|2x + 4|$

Circles. Sketch the graph labeling the center.

6)  $x^2 + y^2 = 36$

7)  $x^2 - 8x + y^2 - 10y = 72$

Square Roots. Sketch the graph, labeling the "start" point(s).

8)  $y = -\sqrt{4x + 1}$

9)  $y = \sqrt{3 - 6x}$

10)  $y = \sqrt{16 - x^2}$

Rational functions. Sketch the graph, labeling the vertical and horizontal asymptotes.

$$11) y = \frac{1}{3x-5}$$

$$12) y = \frac{3x}{x-4}$$

Exponential functions. Sketch the graph, labeling any horizontal asymptotes.

$$13) y = 7^x$$

$$14) y = 2^x - 5$$

Logarithmic functions. Sketch the graph, labeling any vertical asymptotes.

$$15) y = \log_3(x-2)$$

$$16) y = \ln x - 1$$

Split (Piecewise) Functions.

$$17) y = \begin{cases} x+3, & x \leq 0 \\ 3, & x > 0 \end{cases}$$

$$18) y = \begin{cases} x-1, & x < 1 \\ -x^2, & x \geq 1 \end{cases}$$