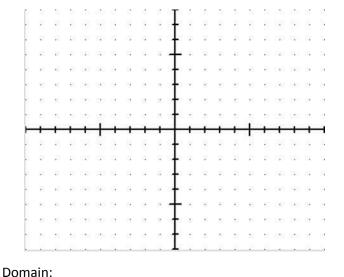
Name:	Period:	Date:

#### **Twelve Basic Parent Functions**

#1 Linear function (identity function)

Graph this function (label five points)



Equation: f(x) = x

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

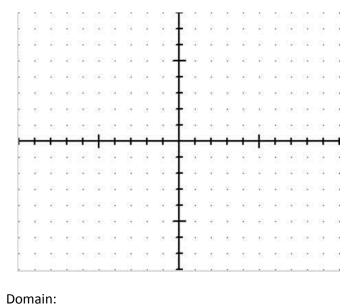
Extrema:

**End Behavior:** 

Range:

#2 Quadratic function

Graph this function (label five points)



Equation:  $f(x) = x^2$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

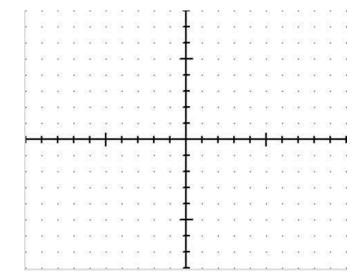
Extrema:

End Behavior:

Range:

#3 Cubic function

Graph this function (label five points)



Equation:  $f(x) = x^3$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain: End Behavior:

Range:

#4 Reciprocal function

Graph this function (label six points, a HA and a VA)

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Equation:  $f(x) = \frac{1}{x}$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

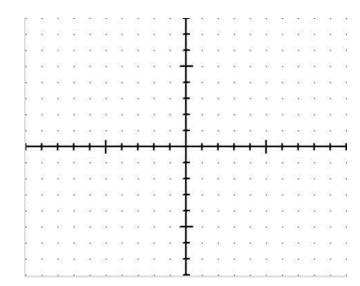
End Behavior:

Range:

Domain:

**#5 Square Root function** 

Graph this function (label four points)



Equation:  $f(x) = \sqrt{x}$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

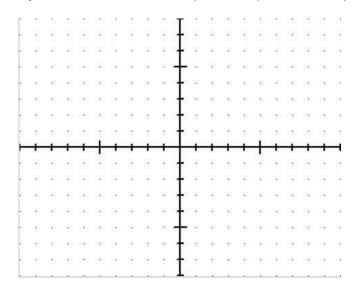
Domain: End Behavior:

Range:

#6 Exponential function

Where b>1 represents \_\_\_\_\_\_ and where 0< b<1 represents \_\_\_\_\_

Graph this function for base e (label three points and a HA)



Equation:  $f(x) = b^x$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

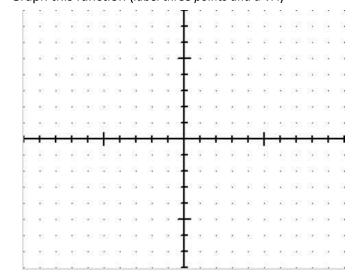
Extrema:

Domain: End Behavior:

Range:

## #7 Logarithmic function

Use the natural logarithm, base e, which is  $f(x) = \ln x$ Graph this function (*label three points and a VA*)



**Equation**:  $f(x) = \log_b x$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

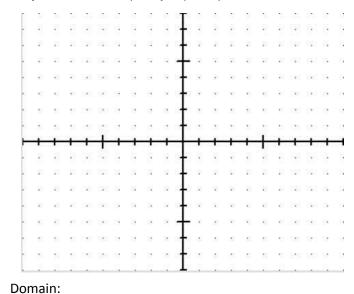
End Behavior:

Domain:

Range:

#8 Absolute Value function

Graph this function (label five points)



Equation: f(x) = |x|

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

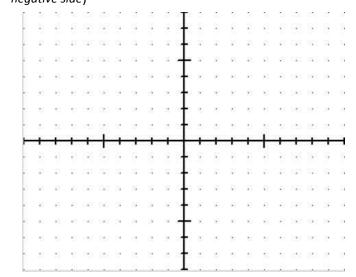
Extrema:

End Behavior:

Range:

# #9 Greatest Integer function

Graph this function (label at least six steps, include the negative side)



Equation: f(x) = [x]

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

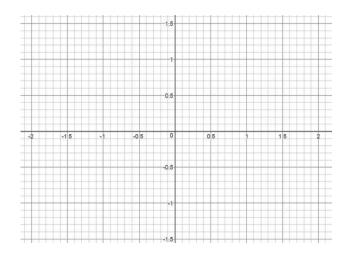
End Behavior:

Domain:

Range:

#10 Logistic function

Graph this function (label three points and two HA's)



Equation:  $f(x) = \frac{1}{1 + e^{-x}}$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

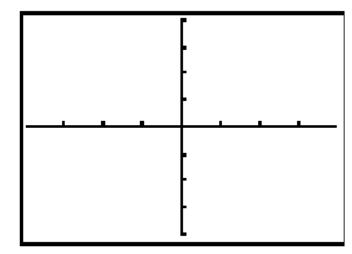
End Behavior:

Range:

Domain:

## #11 Sine function

Graph this function (show two complete cycles)

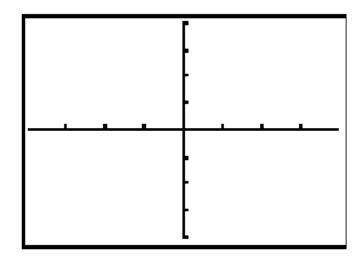


Domain:

Range:

# #12 Cosine function

Graph this function (show two complete cycles)



Domain:

Range:

**Equation**:  $f(x) = \sin x$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

End Behavior:

**Equation**:  $f(x) = \cos x$ 

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

End Behavior: