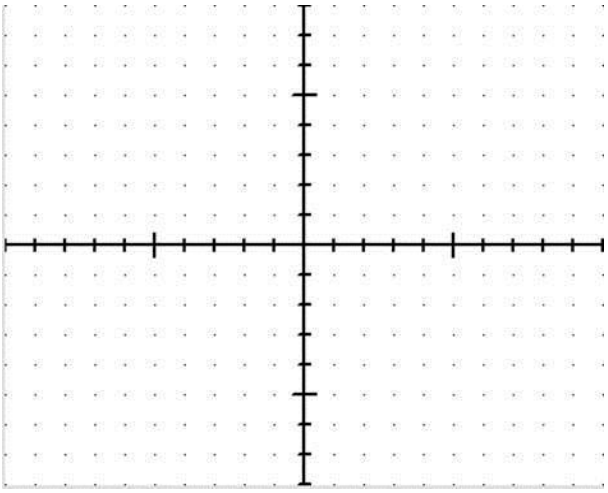
Name:_____Period:____Date:_____

Twelve Basic Parent Functions

#1 *Linear function* (identity function)

Equation: $f(x) = x$

Graph this function (*label five points*)



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

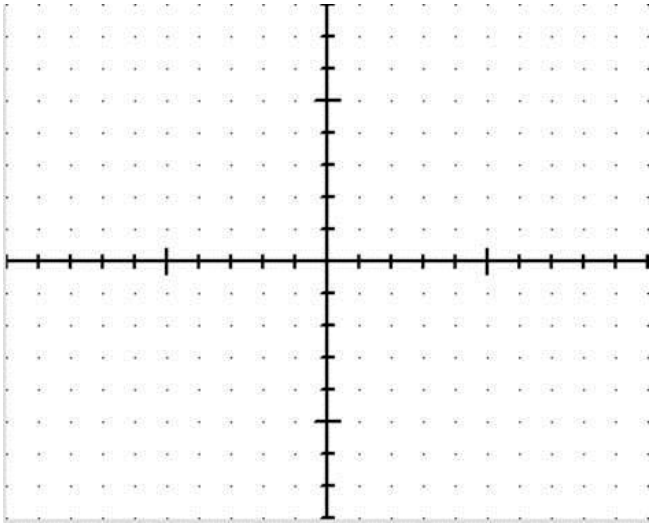
End Behavior:

Range:

#2 *Quadratic function*

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

Graph this function (*label five points*)



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

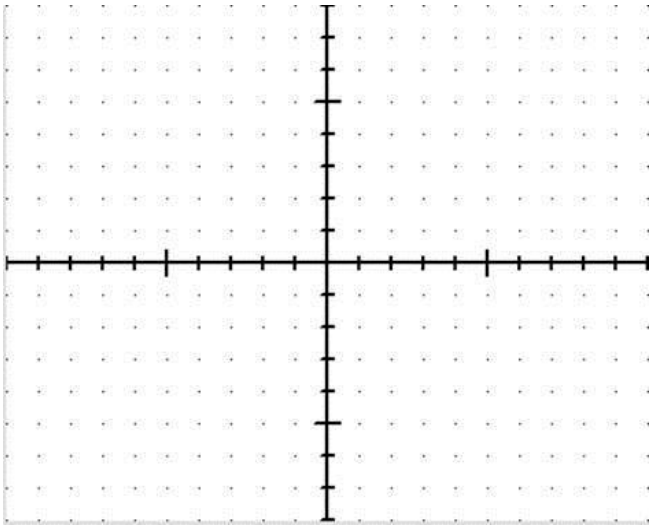
End Behavior:

Range:

#3 *Cubic function*

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

Graph this function (*label five points*)



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

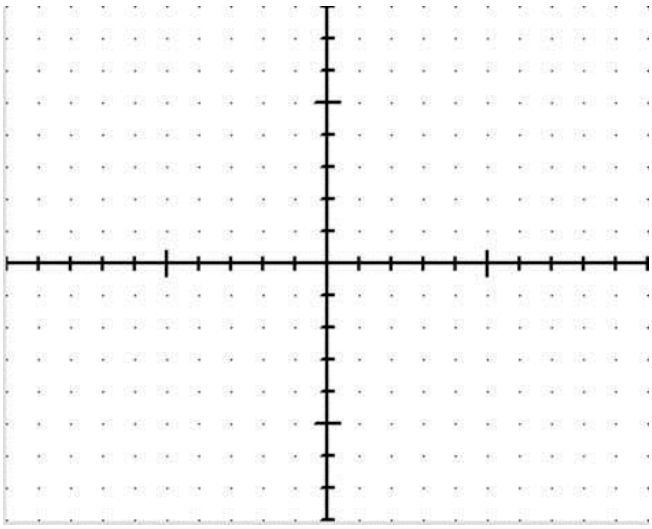
End Behavior:

Range:

#4 *Reciprocal function*

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

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



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

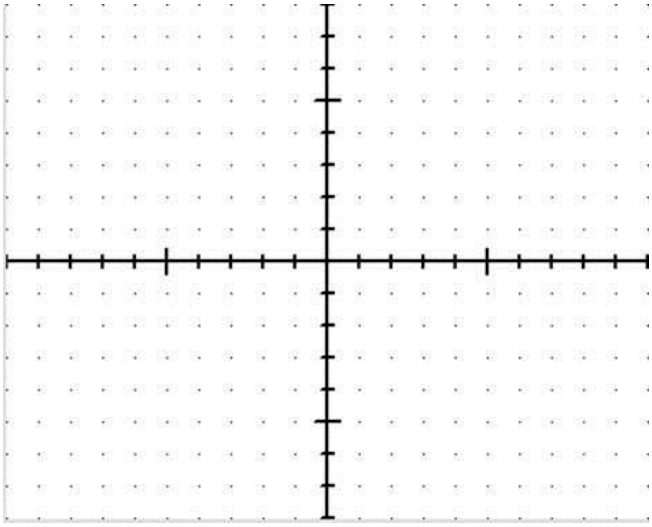
End Behavior:

Range:

#5 *Square Root function*

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

Graph this function (*label four points*)



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

End Behavior:

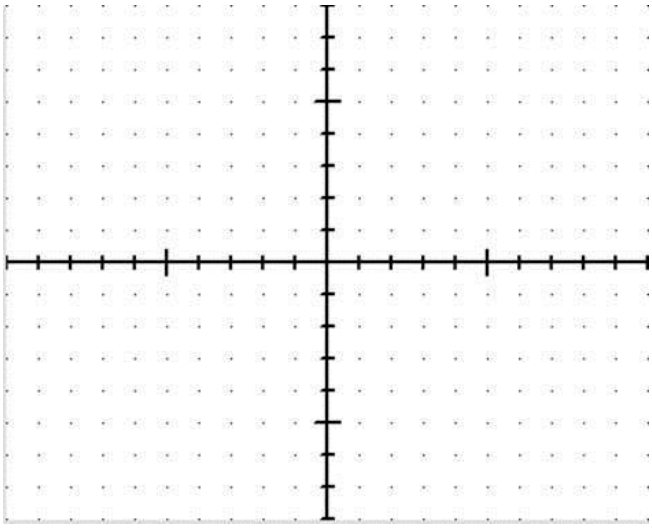
Range:

#6 *Exponential function*

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

Where $b>1$ represents _____and where $0<b<1$ represents _____

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



Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

Domain:

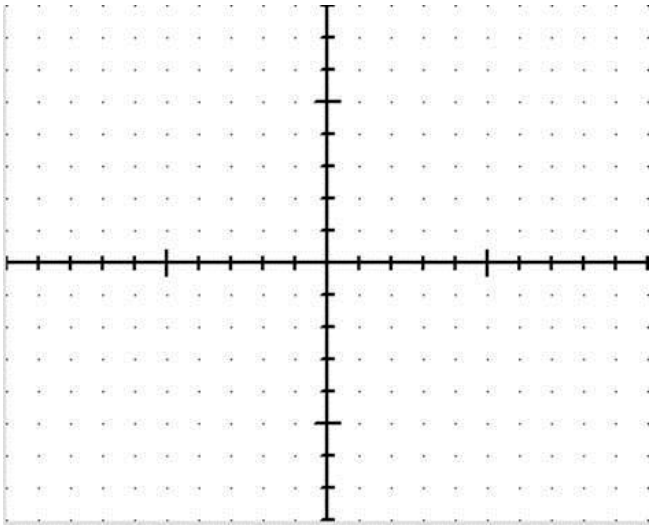
End Behavior:

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*)



Domain:

Range:

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

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

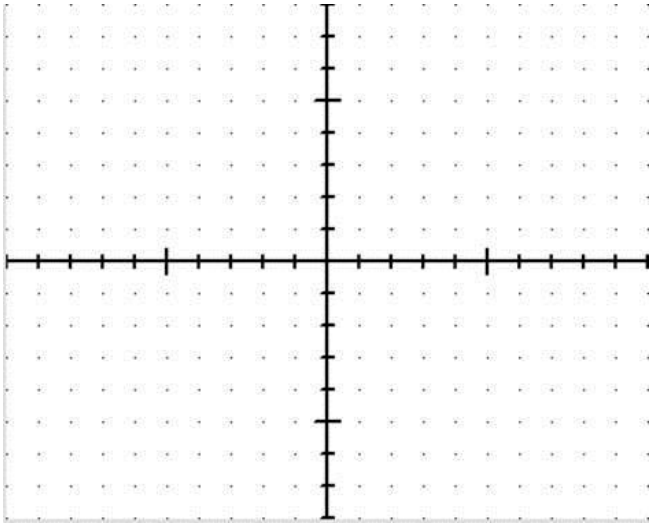
Increasing/Decreasing:

Extrema:

End Behavior:

#8 *Absolute Value function*

Graph this function (*label five points*)



Domain:

Range:

Equation: $f(x)=|x|$

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

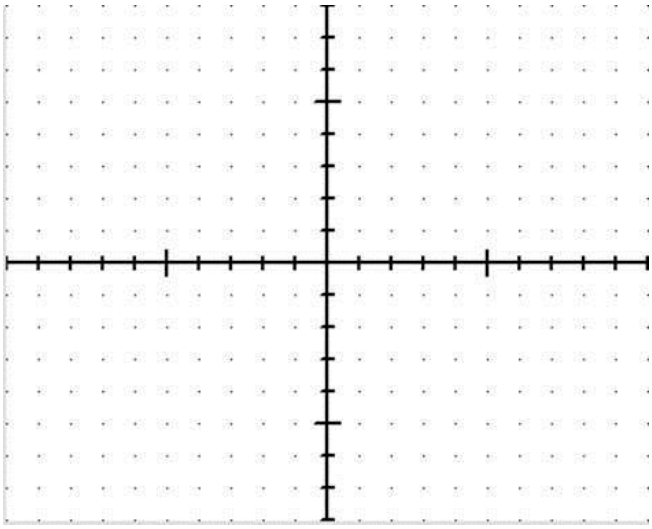
Increasing/Decreasing:

Extrema:

End Behavior:

#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:

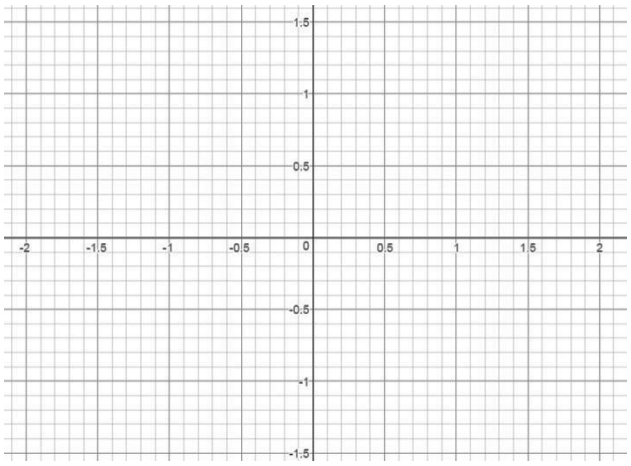
End Behavior:

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:

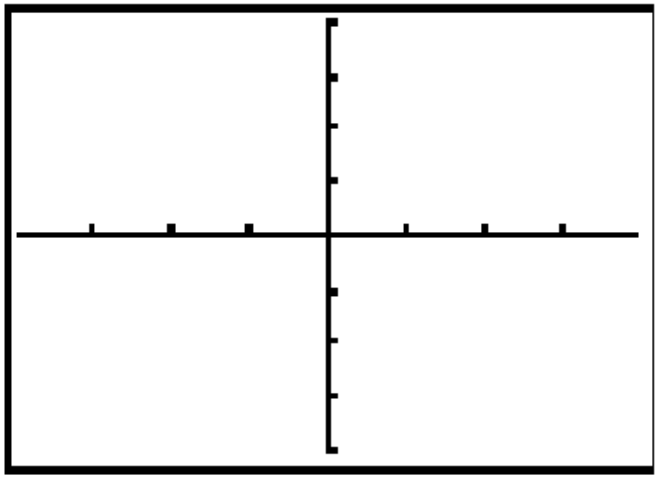
End Behavior:

Domain:

Range:

#11 *Sine function*

Graph this function (*show two complete cycles*)



Domain:

Range:

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

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

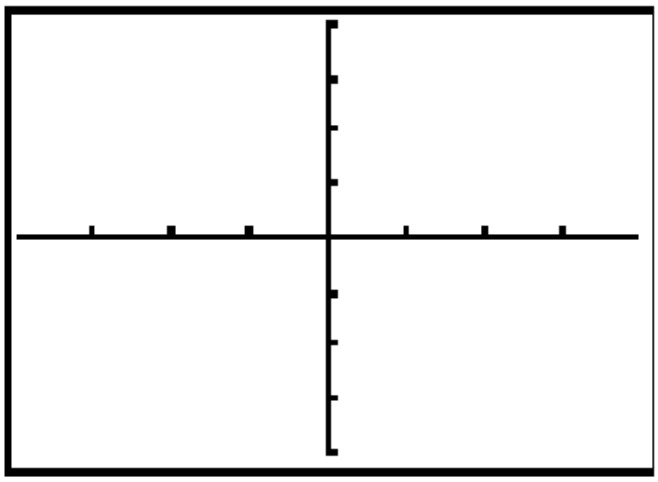
Increasing/Decreasing:

Extrema:

End Behavior:

#12 *Cosine function*

Graph this function (*show two complete cycles*)



Domain:

Range:

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

Even Odd Neither

Symmetry:

Asymptotes:

Continuous or Discontinuous:

Increasing/Decreasing:

Extrema:

End Behavior: