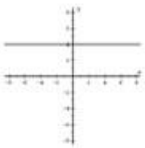
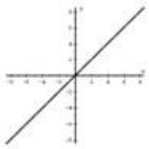
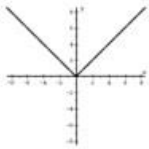
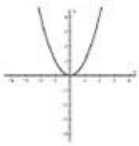
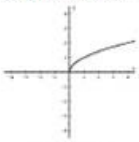
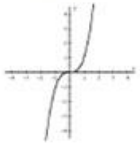
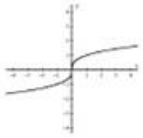
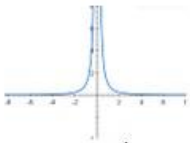
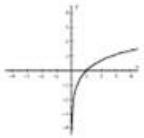
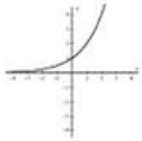
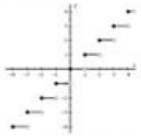
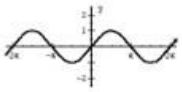
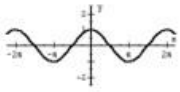
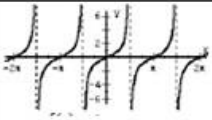
Function Families:

Parent Functions Book (Honors)

Constant  $f(x) = c$	Linear  $f(x) = x$	Absolute Value  $f(x) = \|x\|$	Quadratic  $f(x) = x^2$
Square Root  $f(x) = \sqrt{x}$	Cubic  $f(x) = x^3$	Cube Root  $f(x) = \sqrt[3]{x}$	Reciprocal/Inverse/ Rational  $f(x) = \frac{1}{x}$
Rational  $f(x) = \frac{1}{x^2}$	Logarithmic  $f(x) = \ln(x)$	Exponential  $f(x) = e^x$	Greatest Integer (Step Function)  $f(x) = [[x]]$
Trigonometric Functions →	 $f(x) = \sin(x)$	 $f(x) = \cos(x)$	 $f(x) = \tan(x)$

Name: _____

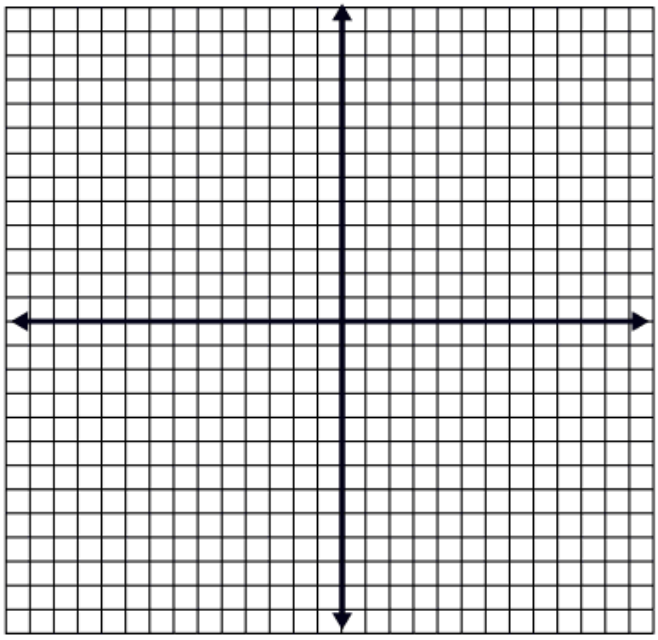
Linear
f(x)= x

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



f(x)= x	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

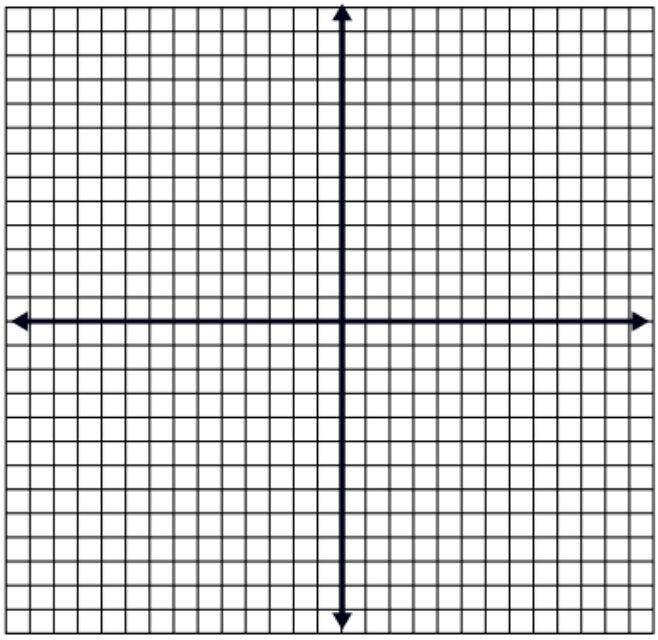
Absolute Value
f(x) = |x|

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



f(x)= |x|	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

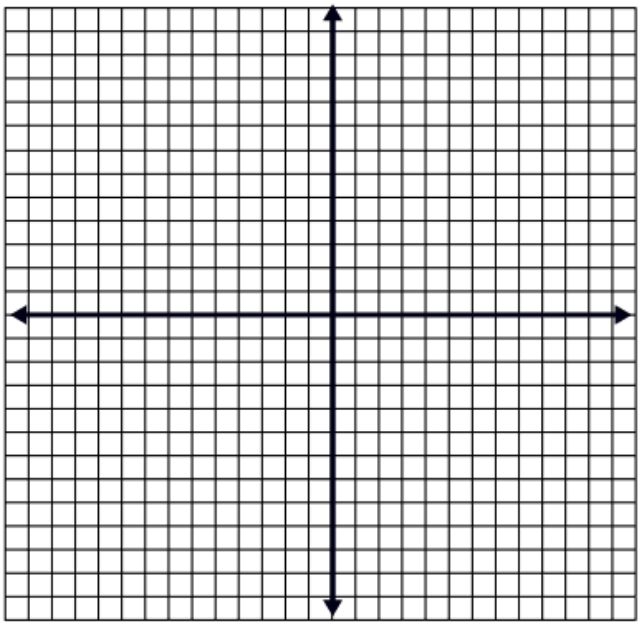
Polynomial (Quadratic) $f(x) = x^2$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



$f(x) = x^2$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

Polynomial (Cubic)

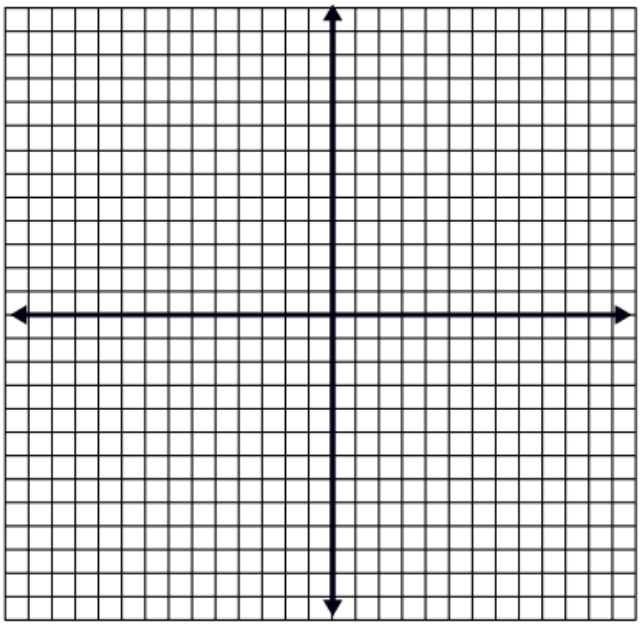
$f(x) = x^3$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



$f(x)= x^3$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

Radical (Square Root)

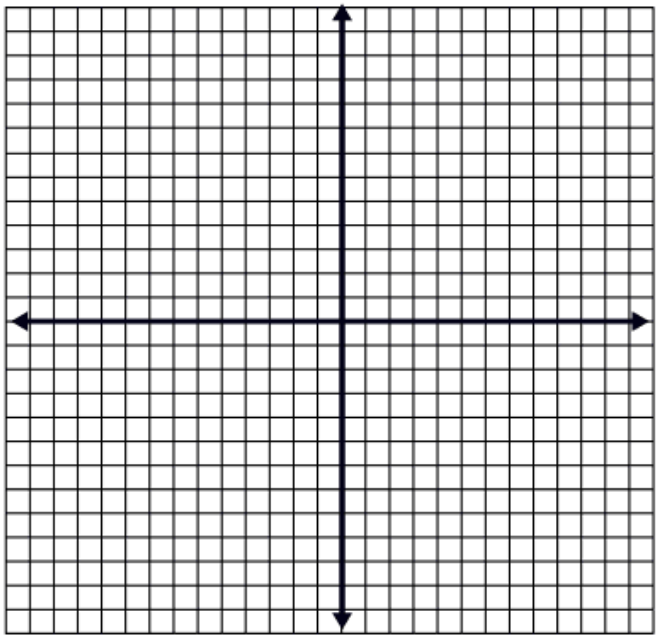
f(x) = $\sqrt{x}$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



f(x)= $\sqrt{x}$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

Radical (Cubic Root)

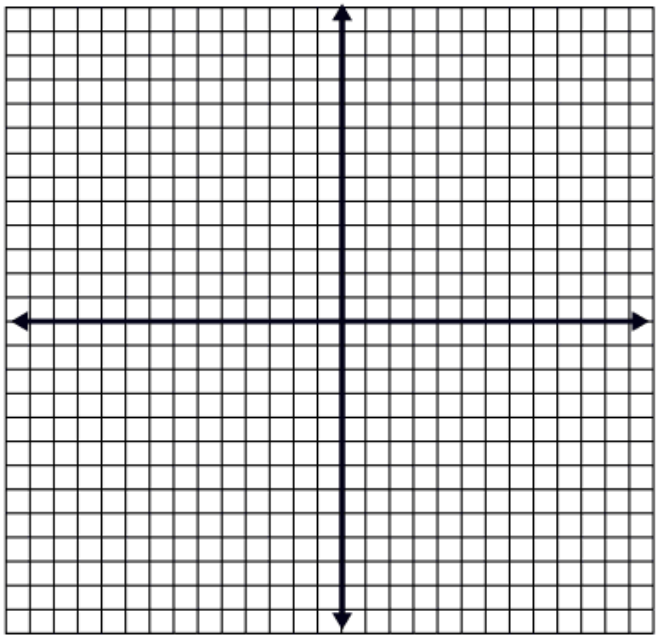
$f(x) = \sqrt[3]{x}$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



$f(x)= \sqrt[3]{x}$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

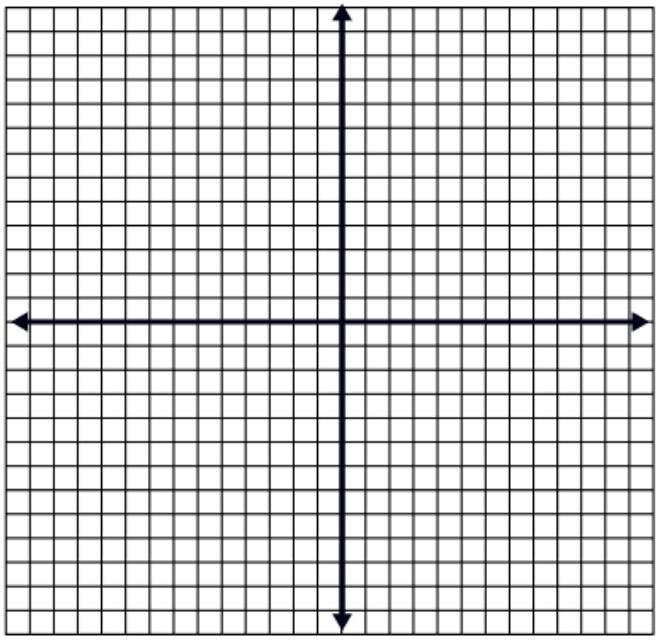
Exponential Growth
$f(x) = 2^x$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



$f(x)= 2^x$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

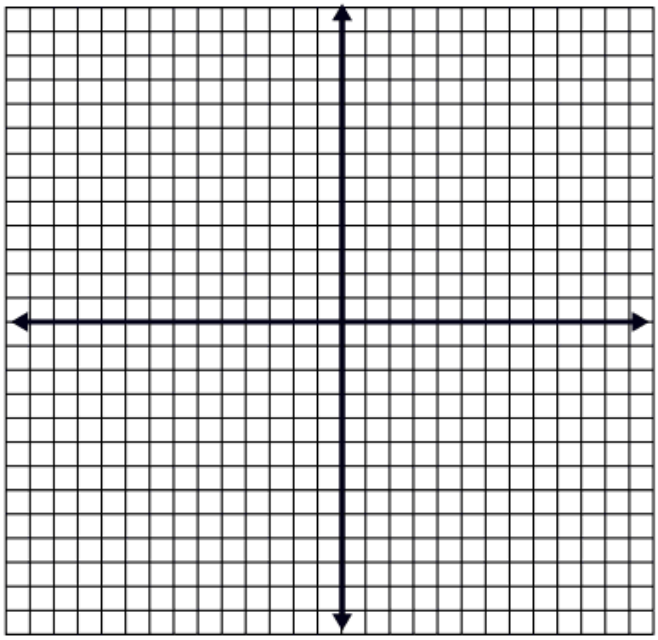
Logarithm
f(x) = logx

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



f(x)= logx	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info:

Exponential Decay

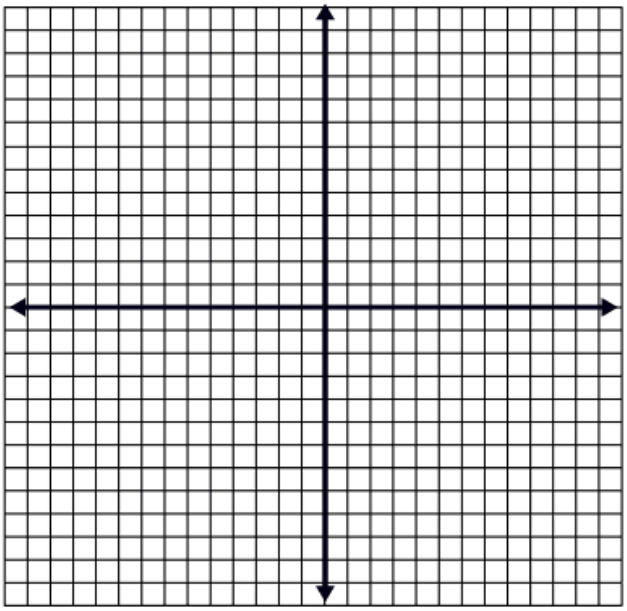
$f(x)=\left(\frac{1}{3}\right)^x$

Table of Values

choose two positive, two negative and zero for values of x

x	y

Sketch:



$f(x)=\left(\frac{1}{3}\right)^x$	
Domain (interval)	
Range (interval)	
Increasing (interval)	
Decreasing (interval	
Intercepts	
Asymptotes	
End behavior	
Positive	
Negative	
Max/Min	
Symmetry	

Additional info: