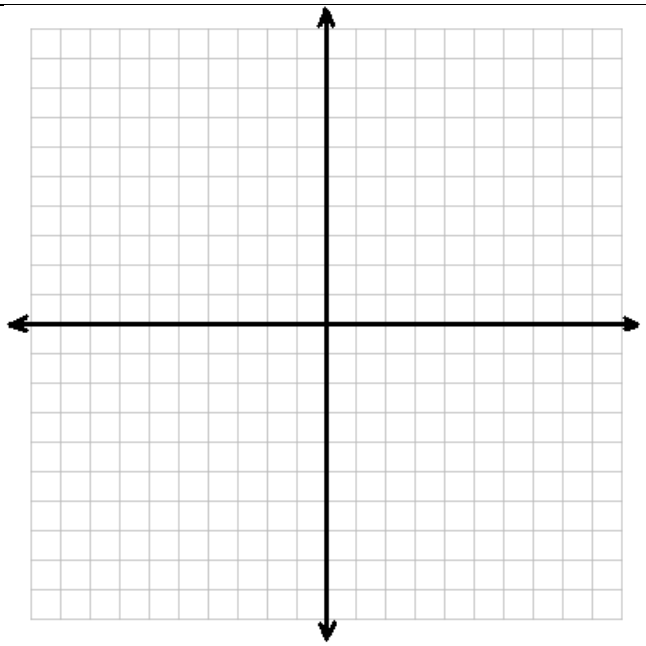
Name: _____ Date: _____ **Unit 1 Class Work**

Parent Functions

For each function, write its name, sketch its graph, list its domain, and range, and write a possible child! ☺

_____

$$y = x$$



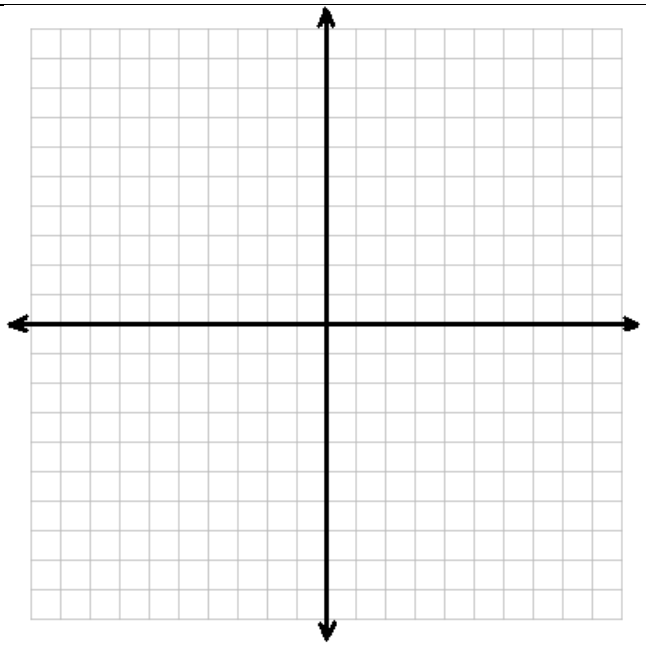
DOMAIN: _____

RANGE: _____

EXAMPLE(S):

_____

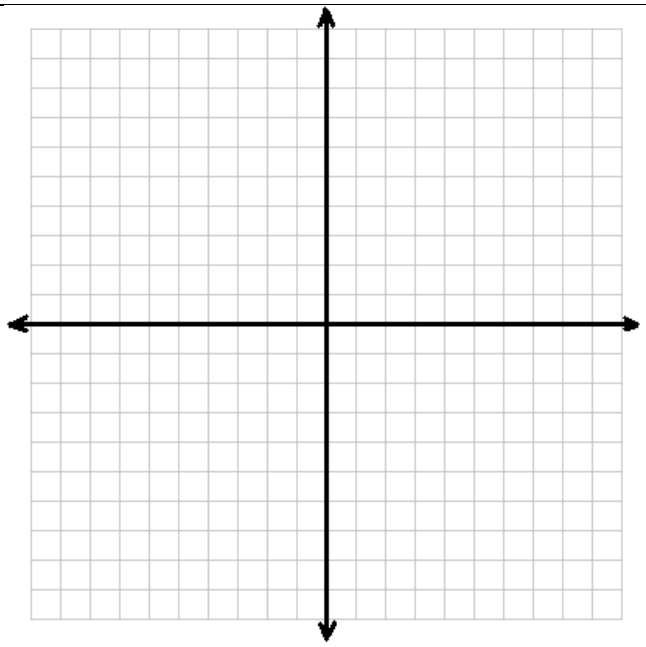
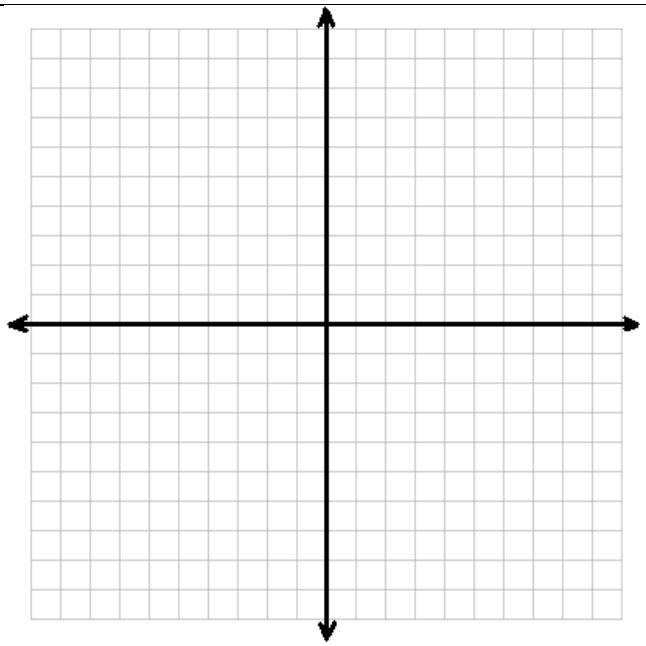
$$y = |x|$$



DOMAIN: _____

RANGE: _____

EXAMPLE(S):

_____ $y = x^2$ **DOMAIN:** _____ **RANGE:** _____ **EXAMPLE(S):**	
_____ $y = \sqrt{x}$ **DOMAIN:** _____ **RANGE:** _____ **EXAMPLE(S):**	

Name: _____ Date: _____ **Unit 1 Class Work**

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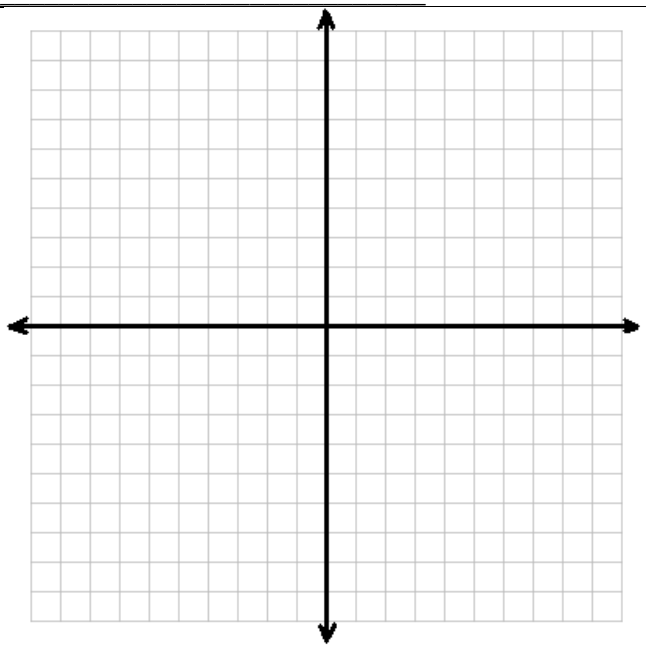
$$y = x^3$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



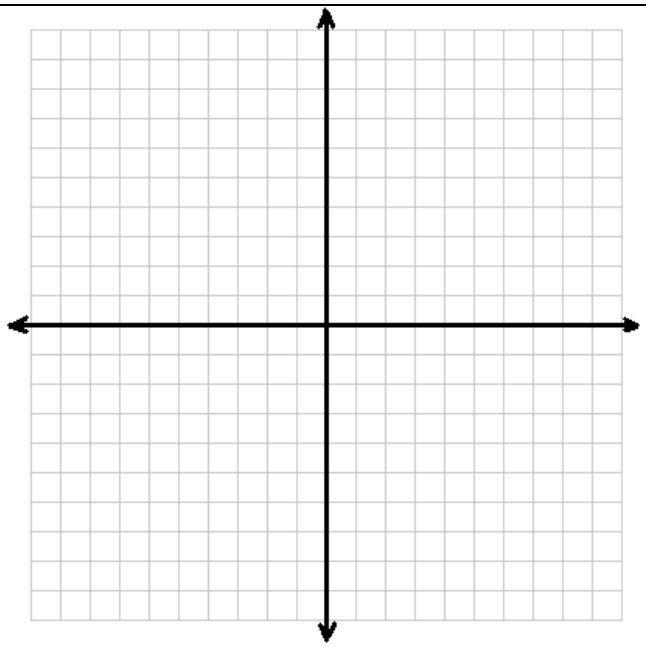
_____

$$y = c$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



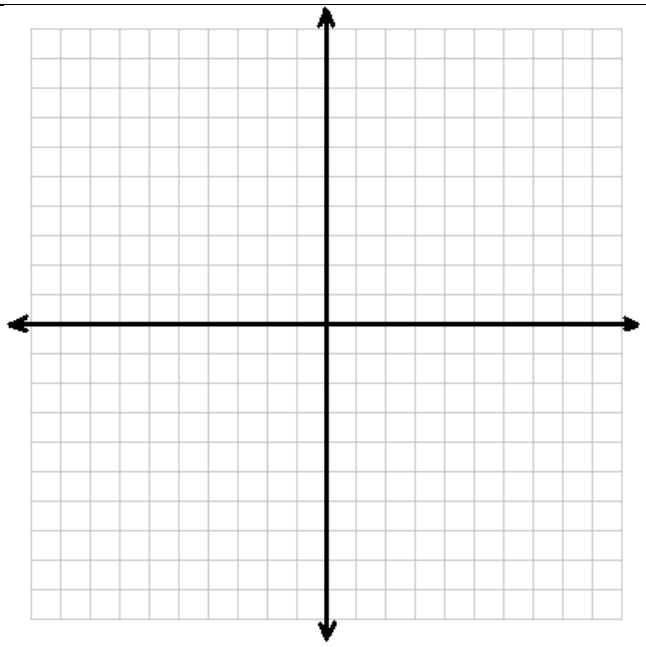
_____

$$y = e^x$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



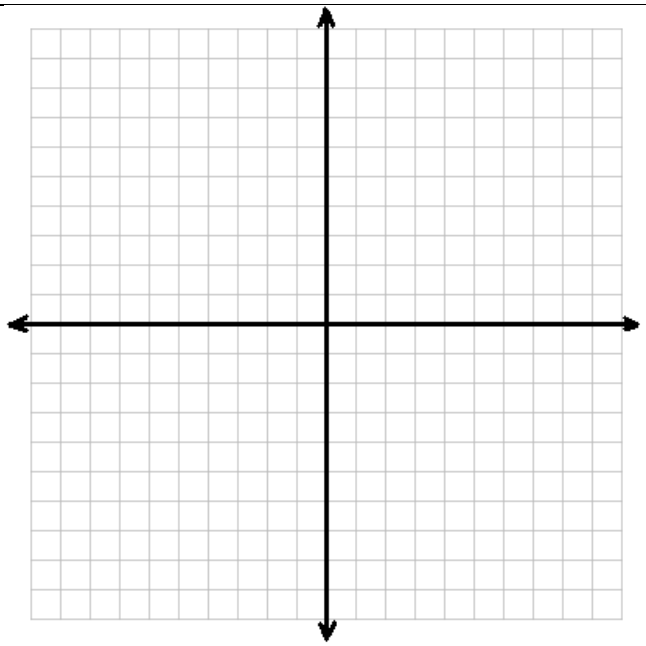
_____

$$y = ln(x)$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



Name: _____ Date: _____ **Unit 1 Class Work**

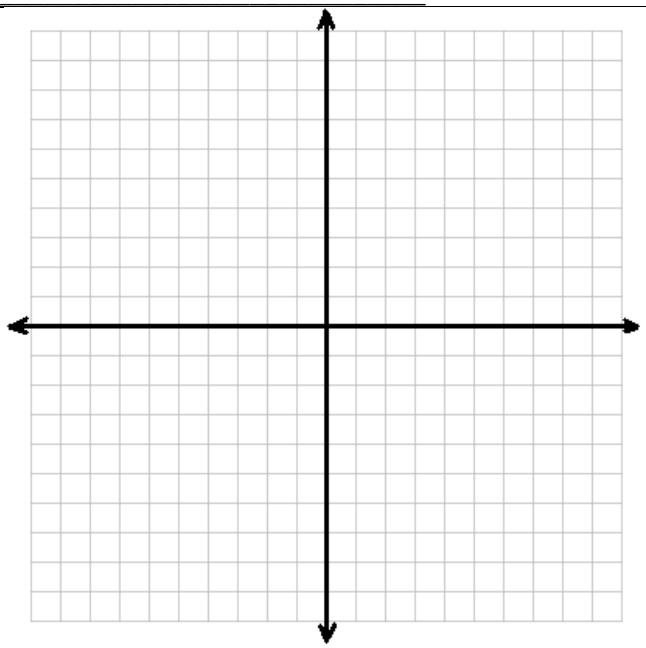
_____

$$y = \frac{1}{x}$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



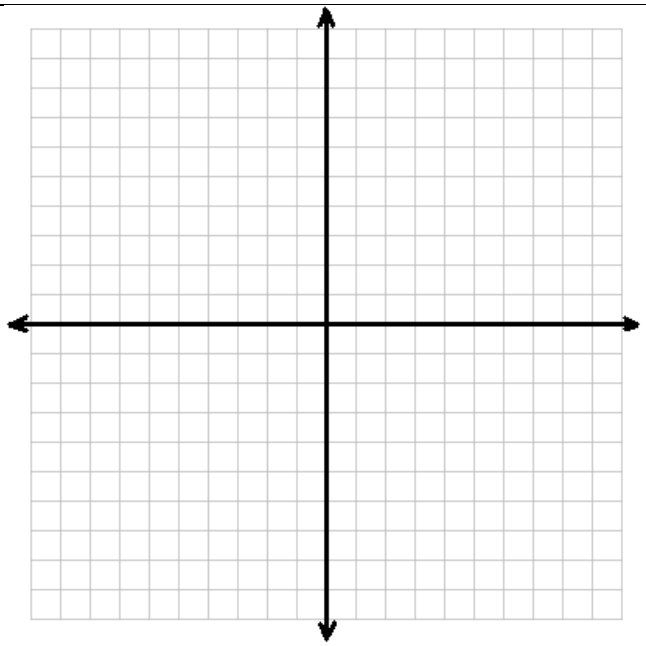
_____

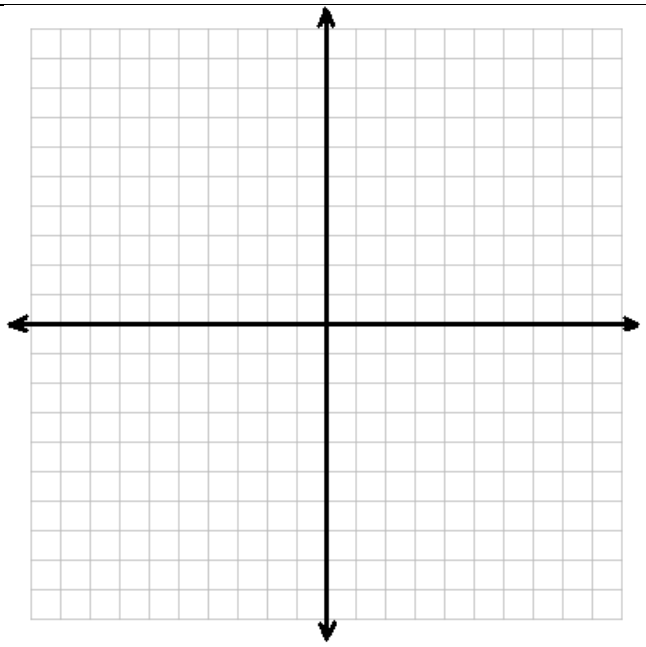
$$y = \frac{1}{x^2}$$

DOMAIN: _____

RANGE: _____

EXAMPLE(S):



_____ $y = [x]$ **DOMAIN:** _____ **RANGE:** _____ **EXAMPLE(S):**	

✎ **QUICK PRACTICE:**

1. State the name of the parent function for each.

a. $y = 2x^3 - 1$ b. $f(x) = 1/5x$ c. $f(x) = 9$

2. Name each function. Then sketch a graph, and state the domain and range of each.

a. $y = e^x$ b. $f(x) = 1/x^2$ c. $y = [x]$

3. Write any function that is in the family of each parent function.

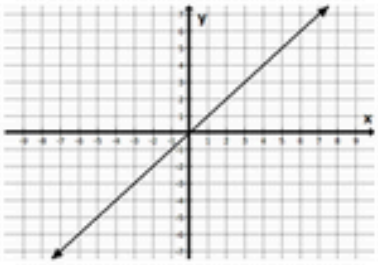
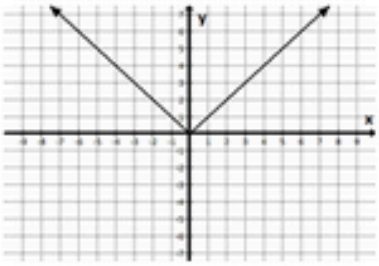
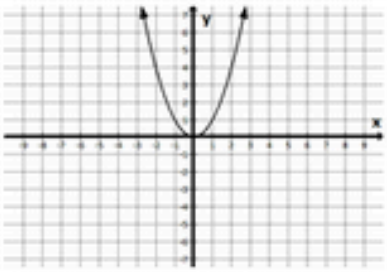
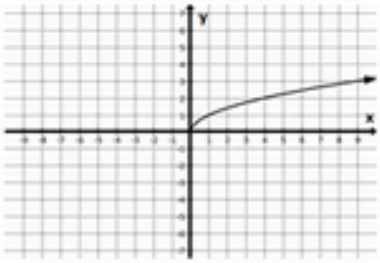
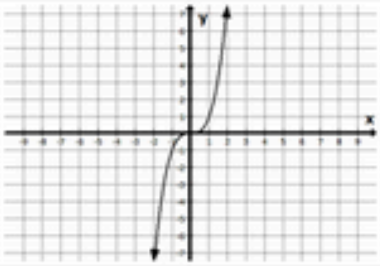
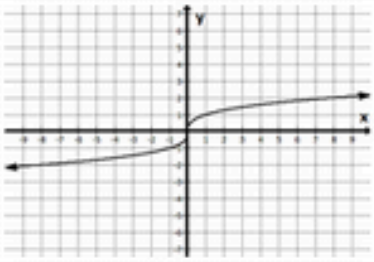
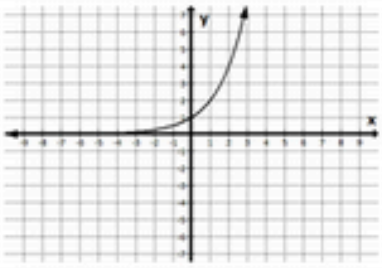
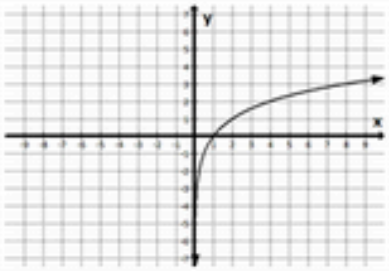
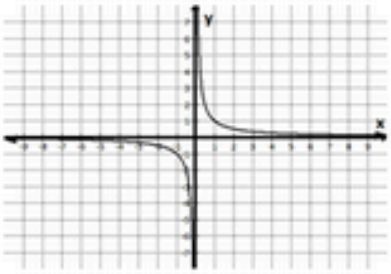
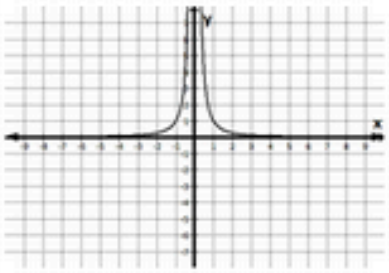
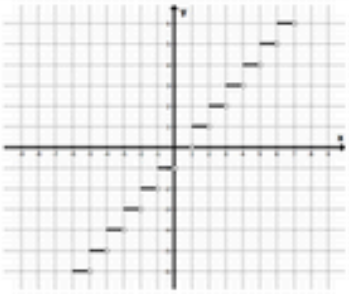
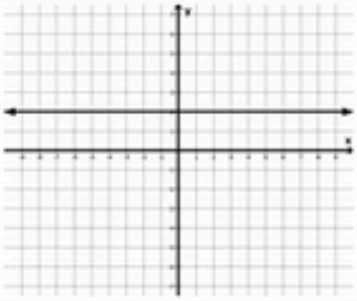
a. Logarithmic b. Quadratic c. Linear

Name: _____ Date: _____ **Unit 1 Class Work**

Exit Activity:

On a post-it note, Write a "Tweet" about anything you learned today. (40 characters or less!)

Post it on the board when you are done, and draw a star on your "favorite!"

Parent Function	Graph	Parent Function	Graph
$y = x$ **Linear**, Odd Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$ End Behavior: $x \to -\infty,\ y \to -\infty$ $x \to \infty,\ y \to \infty$		$y = \lvert x \rvert$ **Absolute Value**, Even Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ End Behavior: $x \to -\infty,\ y \to \infty$ $x \to \infty,\ y \to \infty$	
$y = x^2$ **Quadratic**, Even Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ End Behavior: $x \to -\infty,\ y \to \infty$ $x \to \infty,\ y \to \infty$		$y = \sqrt{x}$ **Radical**, Neither Domain: $[0, \infty)$ Range: $[0, \infty)$ End Behavior: $x \to \infty,\ y \to \infty$	
$y = x^3$ **Cubic**, Odd Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$ End Behavior: $x \to -\infty,\ y \to -\infty$ $x \to \infty,\ y \to \infty$		$y = \sqrt[3]{x}$ **Cube Root**, Odd Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$ End Behavior: $x \to -\infty,\ y \to -\infty$ $x \to \infty,\ y \to \infty$	
$y = b^x,\ b > 1$ **Exponential**, Neither Domain: $(-\infty, \infty)$ Range: $(0, \infty)$ End Behavior: $x \to -\infty,\ y \to 0$ $x \to \infty,\ y \to \infty$		$y = \log_b(x),\ b > 1$ **Log**, Neither Domain: $(0, \infty)$ Range: $(-\infty, \infty)$ End Behavior: $x \to 0^+,\ y \to -\infty$ $x \to \infty,\ y \to \infty$	
$y = \frac{1}{x}$ **Rational (Inverse)**, Odd Domain: $(-\infty, 0) \cup (0, \infty)$ Range: $(-\infty, 0) \cup (0, \infty)$ End Behavior: $x \to -\infty,\ y \to 0$ $x \to \infty,\ y \to 0$		$y = \frac{1}{x^2}$ **Rational (Inverse Squared)**, Even Domain: $(-\infty, 0) \cup (0, \infty)$ Range: $(0, \infty)$ End Behavior: $x \to -\infty,\ y \to 0$ $x \to \infty,\ y \to 0$	
$y = \text{int}(x) = [x]$ **Greatest Integer**, Neither Domain: $(-\infty, \infty)$ Range: $\{y : y \in \mathbb{Z}\}$ (integers) End Behavior: $x \to -\infty,\ y \to -\infty$ $x \to \infty,\ y \to \infty$		$y = C$ ($y = 2$ in the graph) **Constant**, Even Domain: $(-\infty, \infty)$ Range: $\{y : y = C\}$ End Behavior: $x \to -\infty,\ y \to C$ $x \to \infty,\ y \to C$