

Name of Function:

Linear

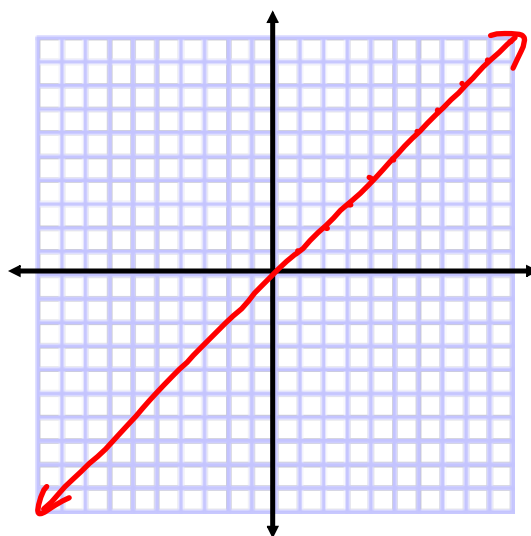
Equation:

$$y = x$$

Domain and Range:

$$D \rightarrow \{x \in \mathbb{R}\}$$

$$R \rightarrow \{y \in \mathbb{R}\}$$



Name of Function:

Quadratic

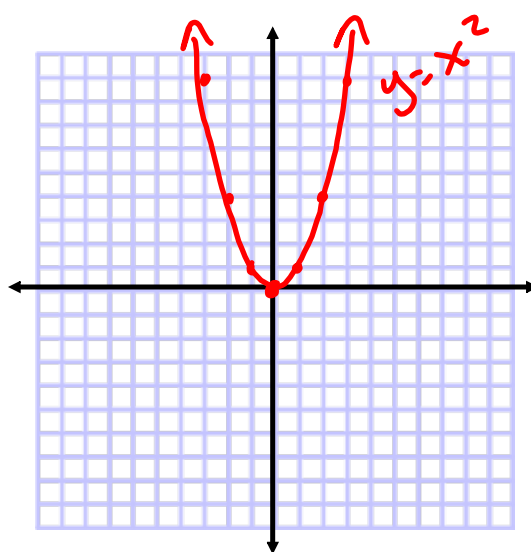
Equation:

$$y = x^2$$

Domain and Range:

$$D \rightarrow \{x \in \mathbb{R}\}$$

$$R \rightarrow \{y \in \mathbb{R} \mid y \geq 0\}$$



Name of Function:

Absolute

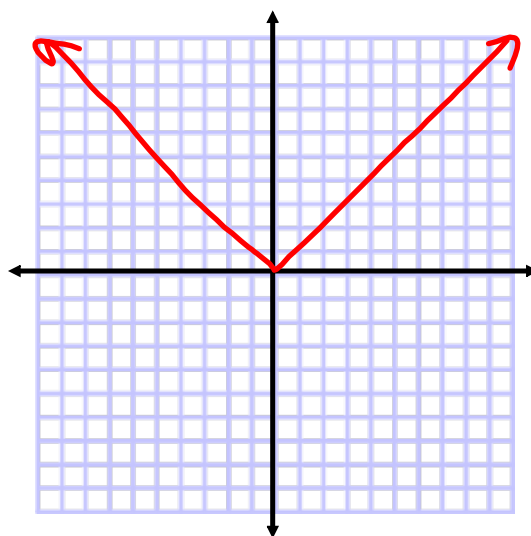
Equation:

$$y = |x|$$

Domain and Range:

$$D \rightarrow \{x \in \mathbb{R}\}$$

$$R \rightarrow \{y \in \mathbb{R} \mid y \geq 0\}$$



Name of Function:

Root

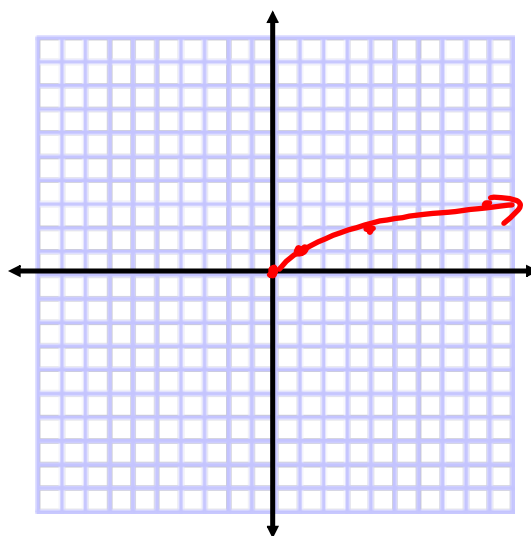
Equation:

$$y = \sqrt{x}$$

Domain and Range:

$$D \rightarrow \{x \in \mathbb{R} \mid x \geq 0\}$$

$$R \rightarrow \{y \in \mathbb{R} \mid y \geq 0\}$$



Name of Function:

Reciprocal

"the cool thing
that does the
thing (that goes
whoop!!)"

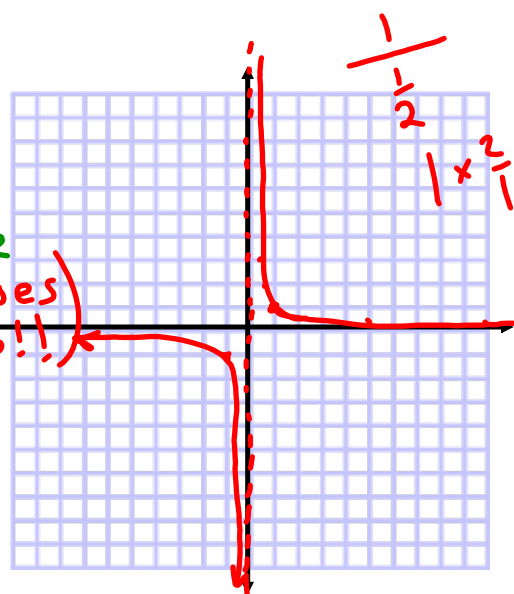
Equation:

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

Domain and Range:

$$D \rightarrow \{x \in \mathbb{R} \mid x \neq 0\}$$

$$R \rightarrow \{y \in \mathbb{R} \mid y \neq 0\}$$



Transformations of Parent Functions

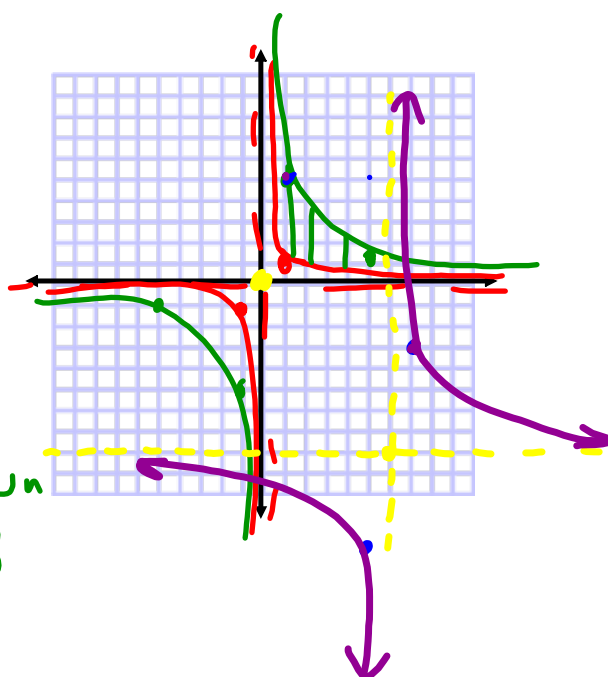
$$f(x) = \frac{1}{x}$$

Graph ✓

$$g(x) = 5f(x-6) - 8$$

Right
6 Down
8

$$y = \frac{5}{(x-6)} - 8$$

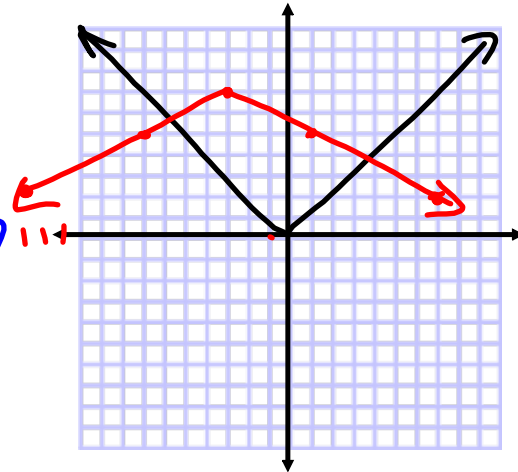


Transformations of Parent Functions

$$f(x) = |x|$$

$$g(x) = -\frac{1}{2} f(x+3) + 7$$

$$g(x) = -\frac{1}{2} |x+3| + 7$$



old y x y New

$$(x, y) \rightarrow (x-3, -\frac{1}{2}y + 7)$$

x	y
-10	10
-4	4
0	0
4	4
10	10



x	y
-13	2
-7	5
-3	7
1	5
7	2

New Points

For ANY transformation

$$y = a f(x - h) + k$$

All points can be mapped by
 $(x, y) \rightarrow (x - h, ay + k)$

For Each of the ⁴~~5~~ parent functions we talked about graph the following (No linear)

$$y = -2 f(x - 4) + 6$$

$$y = \frac{1}{4} f(x + 2) - 1$$