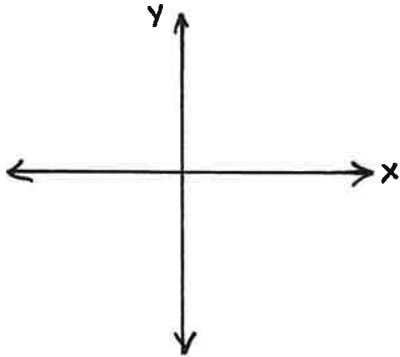
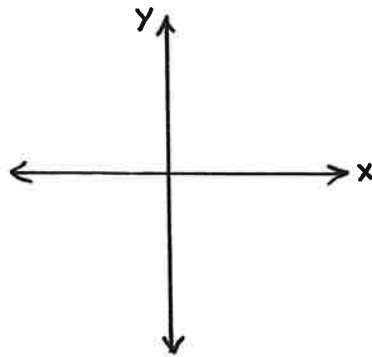


BASIC FUNCTIONS:

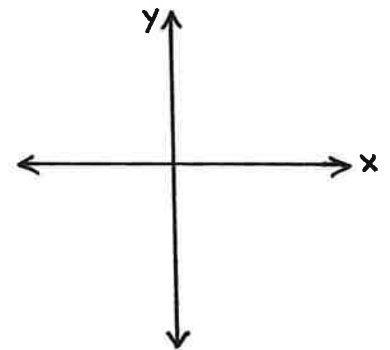
LINEAR
 $f(x) = mx + b$



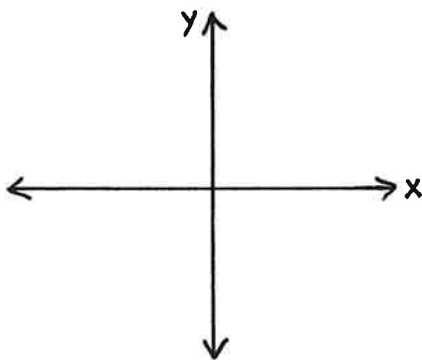
CONSTANT
 $f(x) = b$



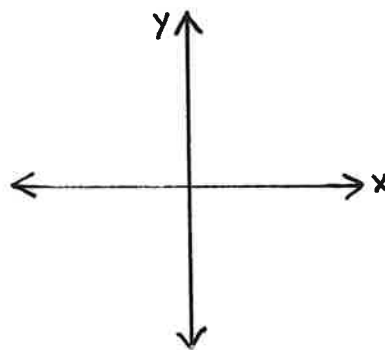
IDENTITY
 $f(x) = x$



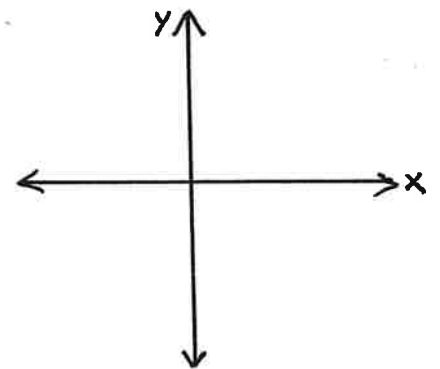
QUADRATIC
 $f(x) = x^2$



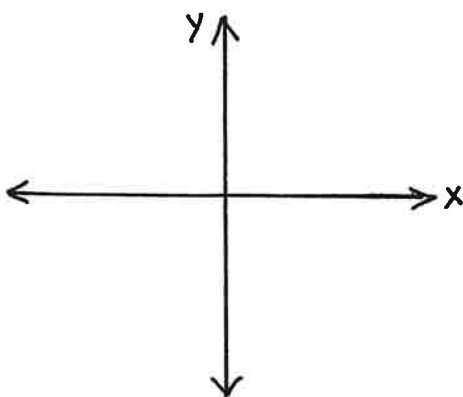
CUBE
 $f(x) = x^3$



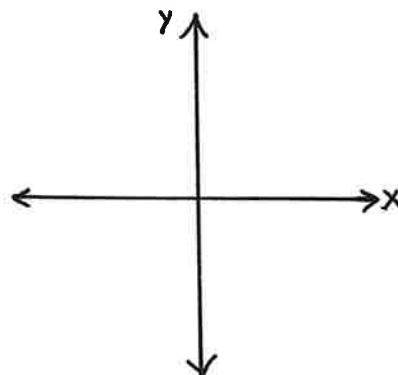
SQUARE ROOT
 $f(x) = \sqrt{x}$



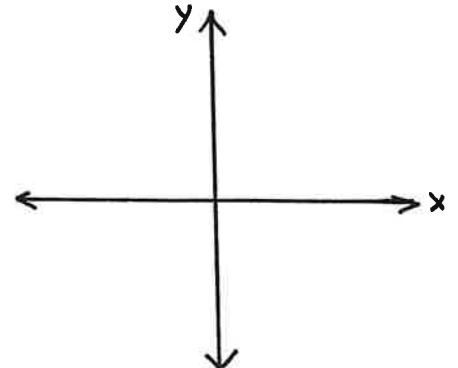
CUBE ROOT
 $f(x) = \sqrt[3]{x}$



ABSOLUTE VALUE
 $f(x) = |x|$



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

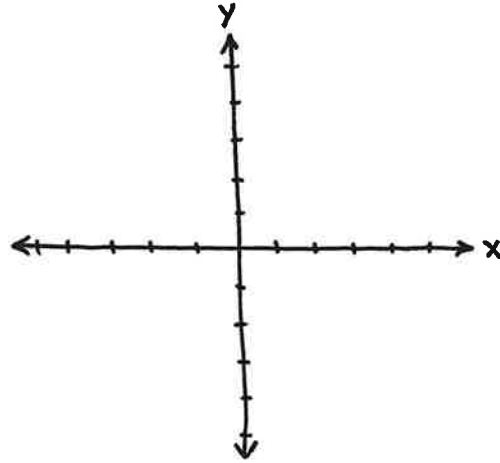


SKETCH EACH GRAPH.

$$y = x^2$$

$$y = x^2 + 2$$

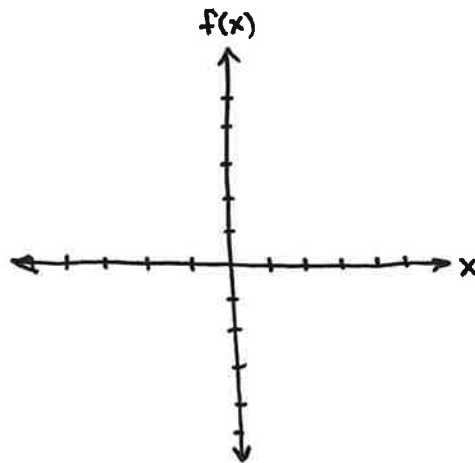
$$y = x^2 - 4$$



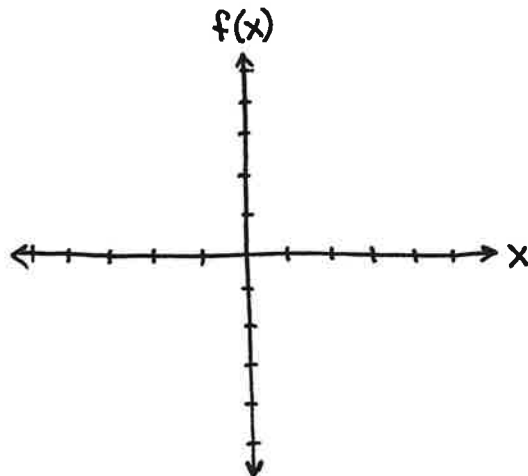
VERTICAL TRANSLATION: $f(x) \rightarrow f(x) + K$

SKETCH EACH GRAPH.

$$f(x) = |x| - 3$$



$$f(x) = x^3 + 2$$

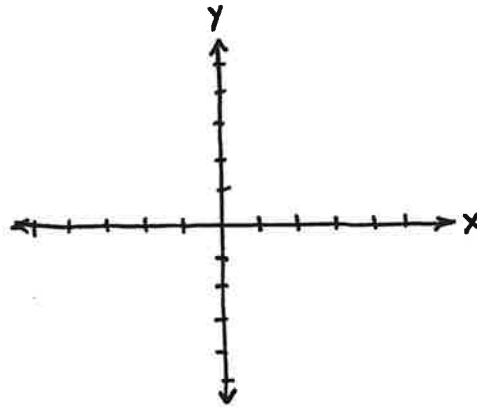


SKETCH EACH GRAPH.

$$y = x^2$$

$$y = (x-2)^2$$

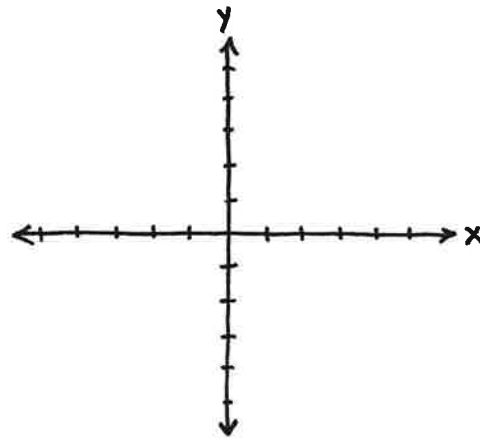
$$y = (x+3)^2$$



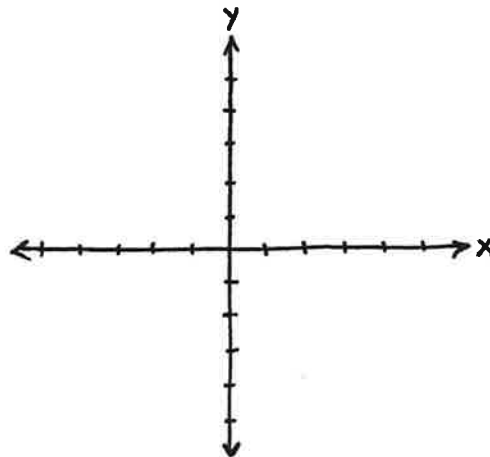
HORIZONTAL TRANSLATION: $f(x) \rightarrow f(x-h)$

SKETCH EACH GRAPH.

$$f(x) = |x+2|$$

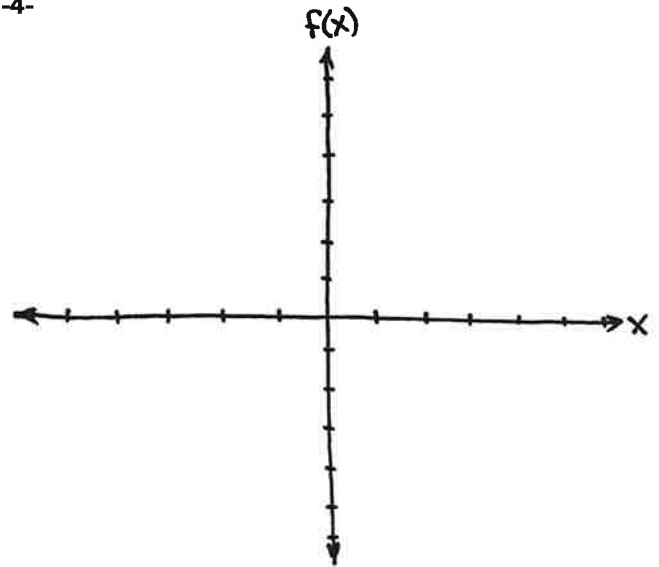


$$f(x) = \sqrt{x-1}$$



SKETCH THE GRAPH.

$$f(x) = (x-3)^2 + 2$$



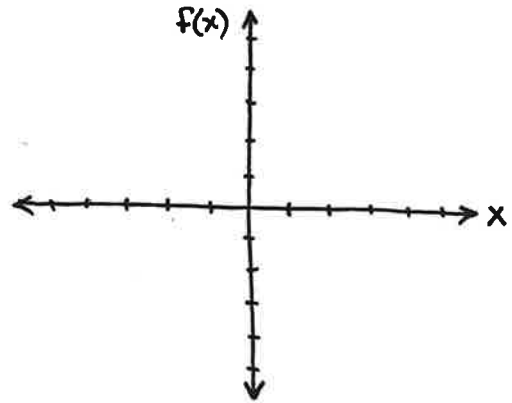
VERTICAL STRETCH / SHRINK : $f(x) \rightarrow a \cdot f(x)$

SKETCH EACH GRAPH.

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

$$f(x) = 3x^2$$

$$f(x) = \frac{1}{2}x^2$$



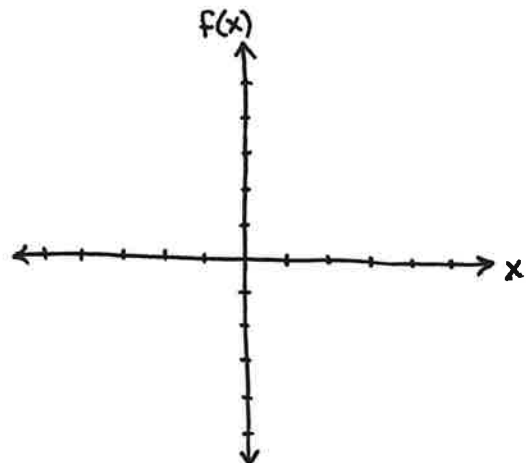
HORIZONTAL STRETCH / SHRINK : $f(x) \rightarrow f(b \cdot x)$

SKETCH EACH GRAPH.

$$f(x)$$

$$f(2x)$$

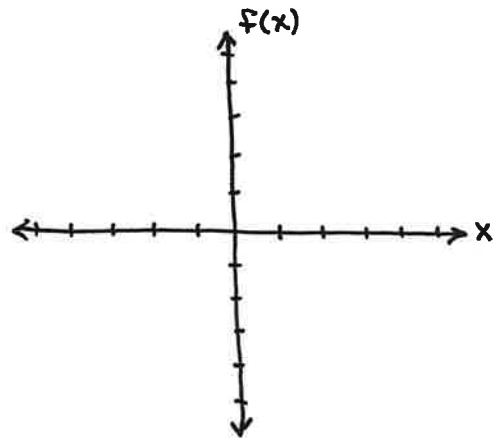
$$f\left(\frac{1}{2}x\right)$$



REFLECTION ABOUT X-AXIS: $f(x) \rightarrow -f(x)$

SKETCH THE GRAPH.

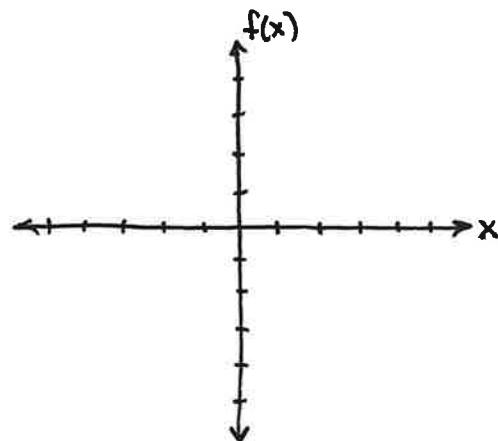
$$f(x) = -\sqrt{x}$$



REFLECTION ABOUT Y-AXIS: $f(x) \rightarrow f(-x)$.

SKETCH THE GRAPH.

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



SKETCH THE GRAPH.

$$f(x) = -\frac{1}{2}(x-2)^2 + 3.$$

