

MATH 1314

Chapter 1.6: Transformations Of Functions

IMPORTANT FEATURES:

Domain

Range

X-Intercept

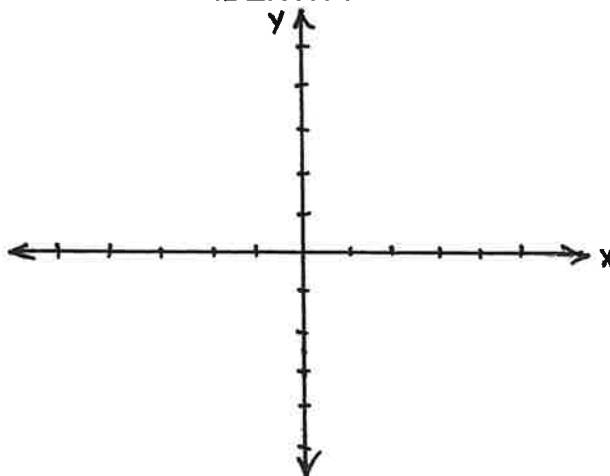
Y-Intercept

Increasing

Decreasing

Even / Odd

IDENTITY



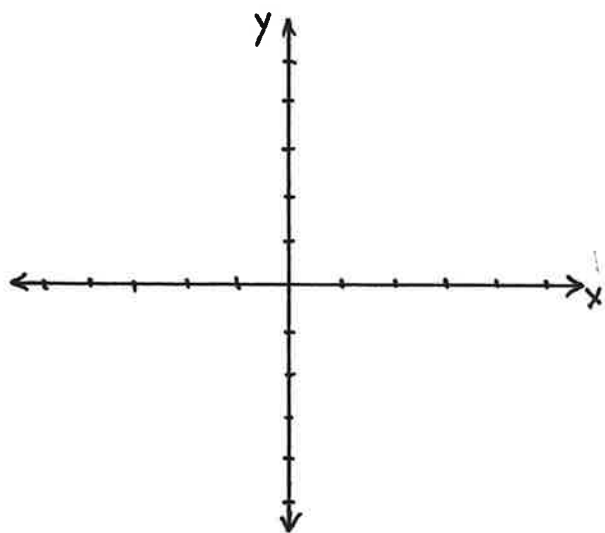
Domain

Increasing

Range

Decreasing

CONSTANT



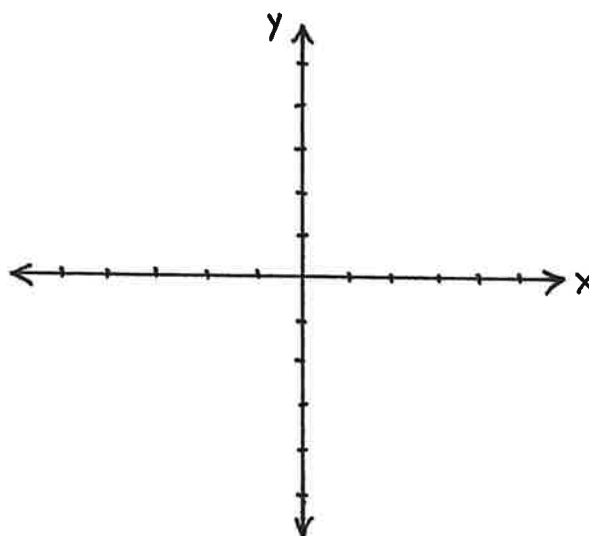
Domain

Increasing

Range

Decreasing

ABSOLUTE VALUE



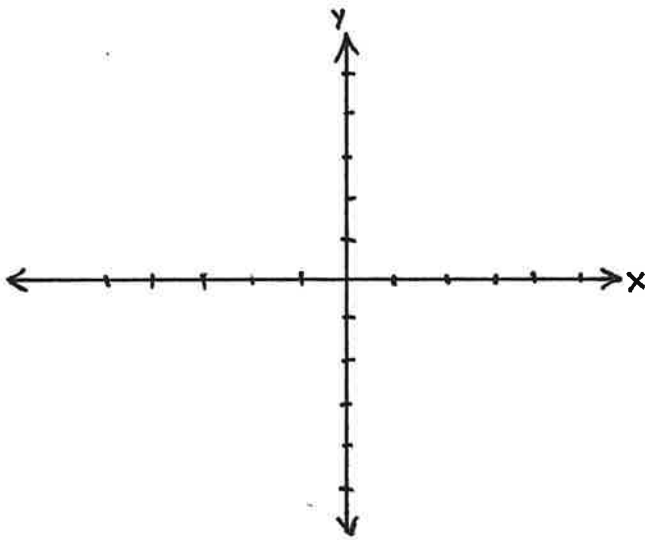
Domain

Increasing

Range

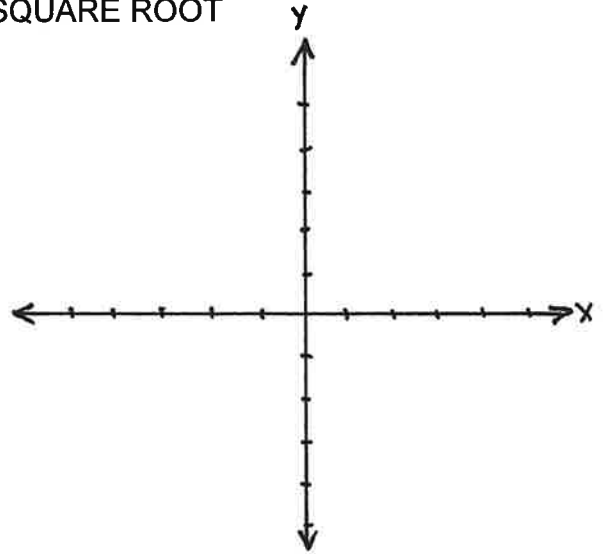
Decreasing

QUADRATIC



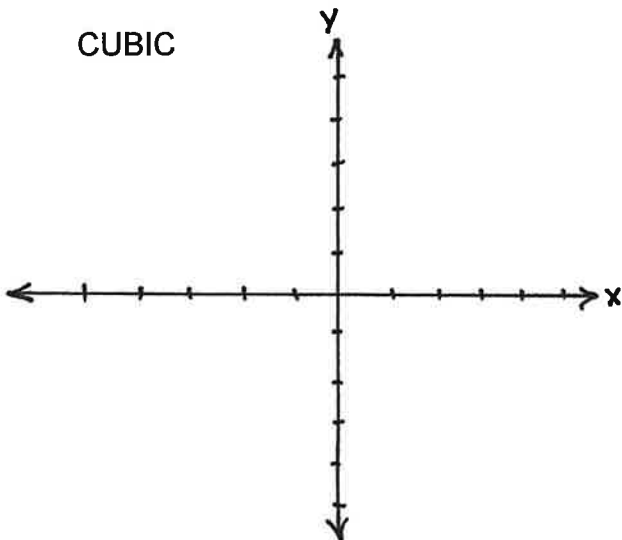
Domain: Increasing
Range: Decreasing

SQUARE ROOT



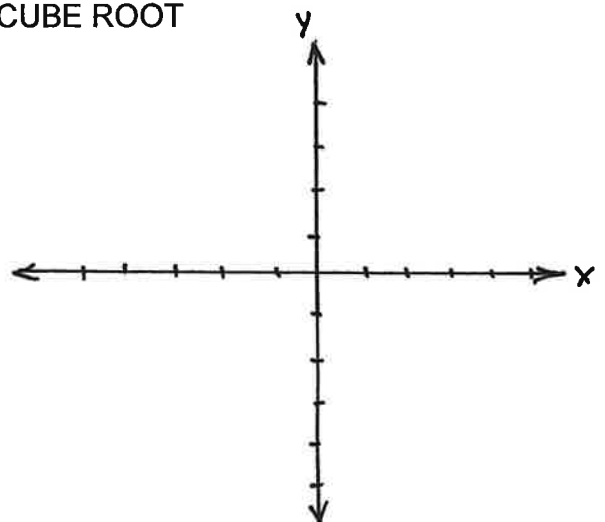
Domain: Increasing
Range: Decreasing

CUBIC



Domain: Increasing
Range: Decreasing

CUBE ROOT



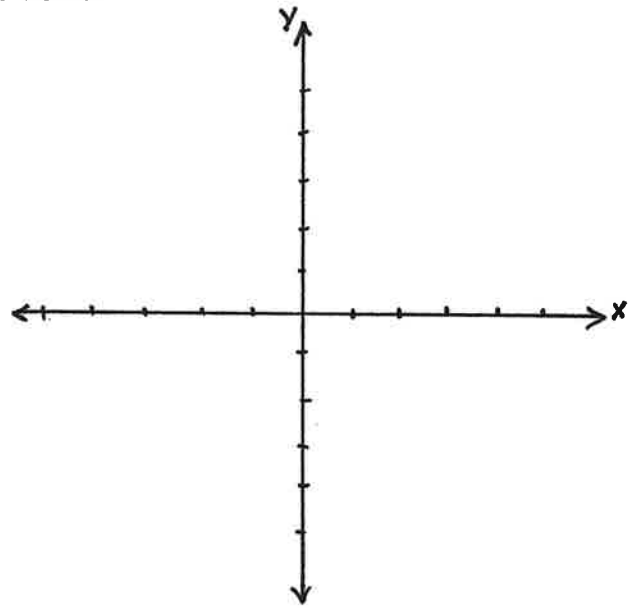
Domain: Increasing
Range: Decreasing

Example:

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

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

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



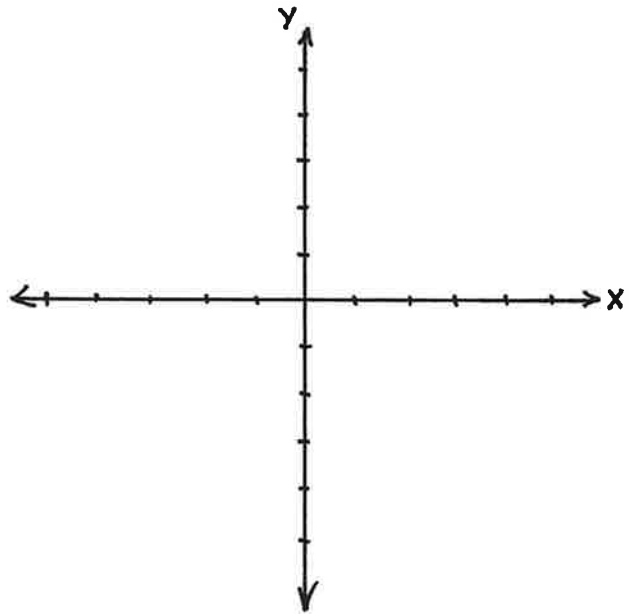
VERTICAL SHIFT:

Example:

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

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

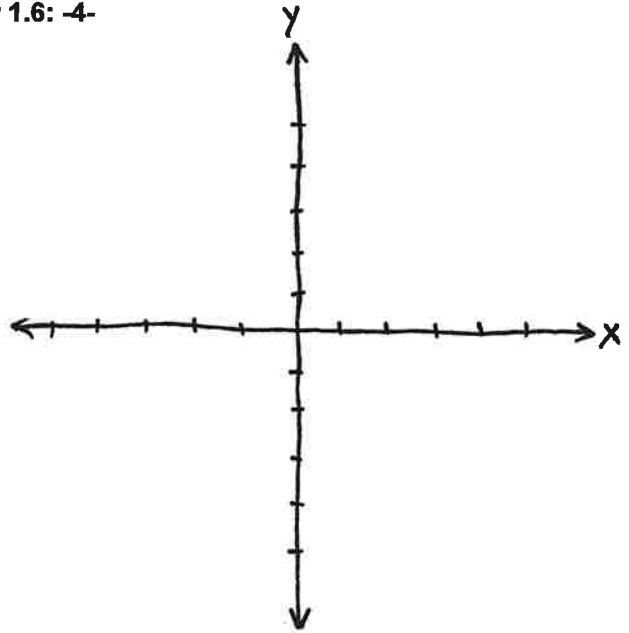
$$f(x) = (x - 2)^2$$



HORIZONTAL SHIFT:

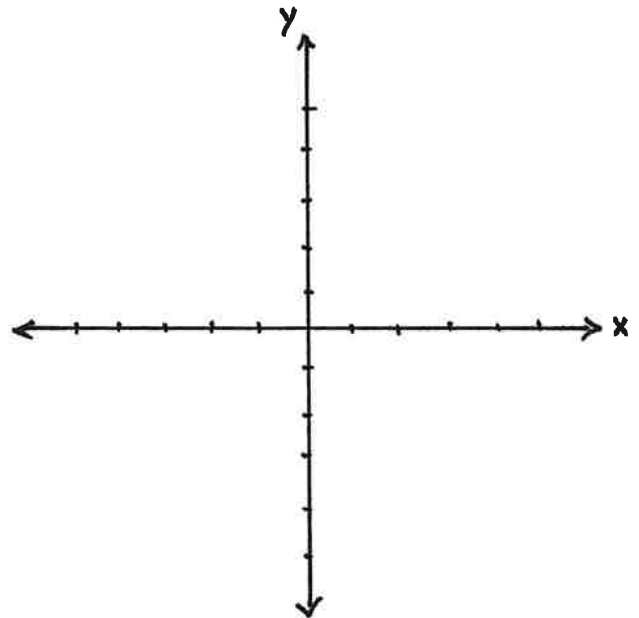
Example: Graph the function.

$$f(x) = \sqrt{x-4}$$



Example: Graph the function.

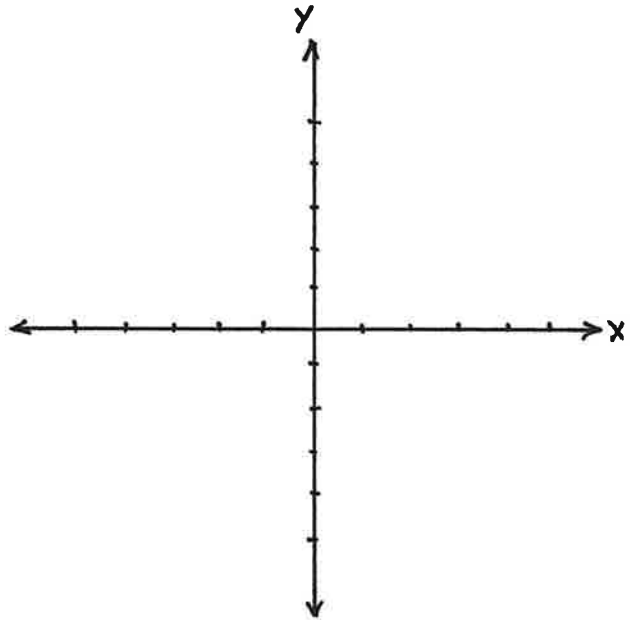
$$f(x) = (x+1)^2 - 3$$



REFLECTION ABOUT X-AXIS

Example: Graph the function.

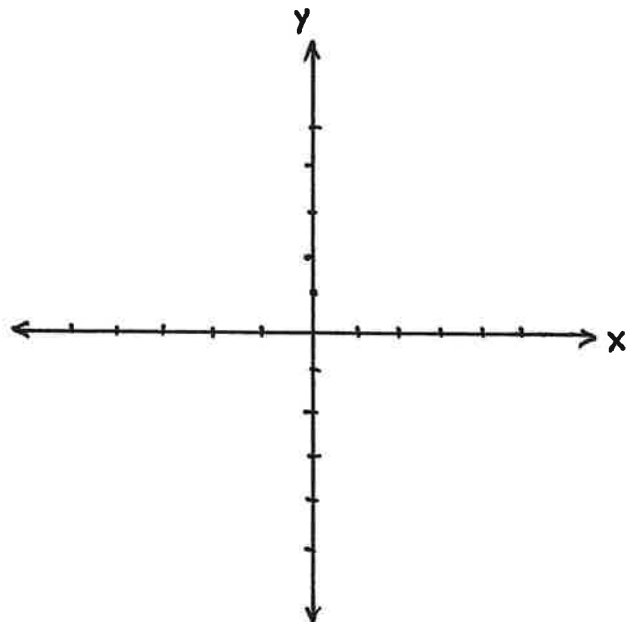
$$f(x) = -\sqrt{x}$$



REFLECTION ABOUT Y-AXIS

Example: Graph the function.

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



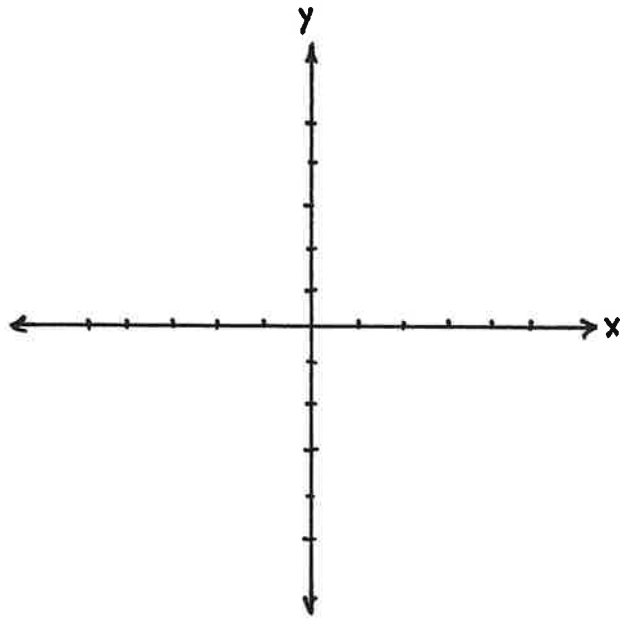
VERTICAL STRETCH / SHRINK

Example: Graph the function.

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

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

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



HORIZONTAL STRETCH / SHRINK

Example: Graph the function.

$$f(x)$$

$$f(2x)$$

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

