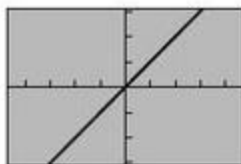


12 Basic Toolkit Functions



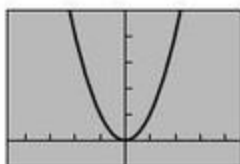
[-4.7, 4.7] by [-3.1, 3.1]

Identity Function

$$f(x) = x$$

Domain = $(-\infty, \infty)$

Range = $(-\infty, \infty)$



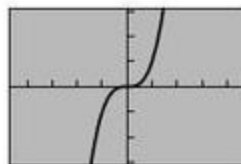
[-4.7, 4.7] by [-1, 5]

Squaring Function

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

Domain = $(-\infty, \infty)$

Range = $[0, \infty)$



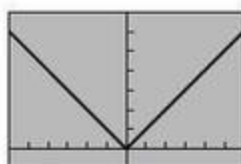
[-4.7, 4.7] by [-3.1, 3.1]

Cubing Function

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

Domain = $(-\infty, \infty)$

Range = $(-\infty, \infty)$



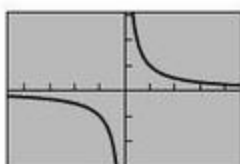
[-6, 6] by [-1, 7]

Absolute Value Function

$$f(x) = |x| = \text{abs}(x)$$

Domain = $(-\infty, \infty)$

Range = $[0, \infty)$



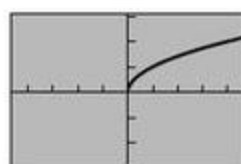
[-4.7, 4.7] by [-3.1, 3.1]

Reciprocal Function

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

Domain = $(-\infty, 0) \cup (0, \infty)$

Range = $(-\infty, 0) \cup (0, \infty)$



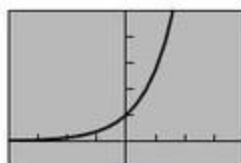
[-4.7, 4.7] by [-3.1, 3.1]

Square Root Function

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

Domain = $[0, \infty)$

Range = $[0, \infty)$



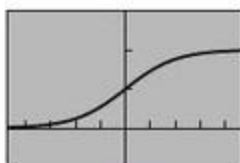
[-4, 4] by [-1, 5]

Exponential Growth Function

$$f(x) = e^x$$

Domain = $(-\infty, \infty)$

Range = $(0, \infty)$



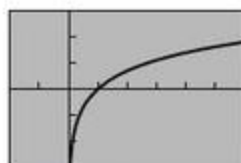
[-4.7, 4.7] by [-0.5, 1.5]

Basic Logistic Function

$$f(x) = \frac{1}{1 + e^{-x}}$$

Domain = $(-\infty, \infty)$

Range = $(0, 1)$



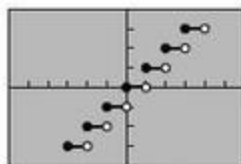
[-2, 6] by [-3, 3]

Natural Logarithmic Function

$$f(x) = \ln x$$

Domain = $(0, \infty)$

Range = $(-\infty, \infty)$



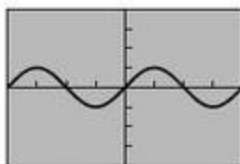
[-6, 6] by [-4, 4]

Greatest Integer Function

$$f(x) = \text{int}(x)$$

Domain = $(-\infty, \infty)$

Range = all integers



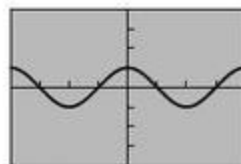
[-2 π , 2 π] by [-4, 4]

Sine Function

$$f(x) = \sin(x)$$

Domain = $(-\infty, \infty)$

Range = $[-1, 1]$



[-2 π , 2 π] by [-4, 4]

Cosine Function

$$f(x) = \cos(x)$$

Domain = $(-\infty, \infty)$

Range = $[-1, 1]$