

8.3 Important Functions

1)

Basic Function	Function	Graph
Linear	$f(x) = x$	See Figure 1
Quadratic	$f(x) = x^2$	See Figure 2
Cubic	$f(x) = x^3$	See Figure 3
Square Root	$f(x) = \sqrt{x}$	See Figure 5
Absolute Value	$f(x) = x $	See Figure 6
Reciprocal	$f(x) = \frac{1}{x}$	See Figure 7

3)

b) (0,0)

5)

a) You get an error message.

b) The domain is restricted to the set of nonnegative numbers.

$$\text{Domain} = \{x : 0 \leq x < \infty\}$$

7)

The axis of symmetry for both functions is the same.

11)

a) (3.01, -4.21)

b) (-0.34, 3.32)

13)

a) \$91.25

b) $f(g(x)) = 50 + 0.0825x$ dollars

15)

a) 0

b) $x^2 - 4x + 3$

c) 7

d) $x^2 - 2x - 1$

17)

a) $3x^3 + 7x^2 - 5x$

b) $2x^2 + 13x - 24$

19)

a) The parabola opens upward.

b) $(\frac{1}{2}, -\frac{81}{4})$

c)

