

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$

$f(x) = x^2 + 7$

$h(x) = \frac{12}{x}$

$j(x) = 2x + 9$

a. $g(10) = -3(10) + 1$

$g(10) = -30 + 1 = \boxed{-29}$

b. $f(3) = 3^2 + 7$

$f(3) = 9 + 7 = \boxed{16}$

c. $h(-2) = \frac{12}{-2}$

$h(-2) = \boxed{-6}$

d. $j(7) = 2(7) + 9$

$j(7) = 14 + 9 = \boxed{23}$

e. $h(a)$

$h(a) = \frac{12}{a}$

f. Find x if $g(x) = 16$

$16 = -3x + 1$

$15 = -3x \quad \boxed{x = -5}$

g. Find x if $h(x) = -2$

$-2 = \frac{12}{x} \quad \boxed{x = -6}$

$-2x = 12$

h. Find x if $f(x) = 23$

$23 = x^2 + 7$

$16 = x^2$

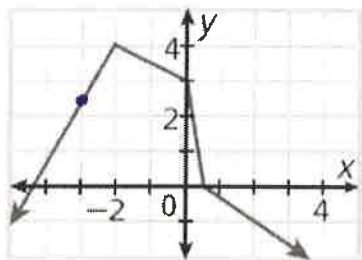
$\boxed{x = 4}$

i. Find x if $j(x) = 19$

$19 = 2x + 9$

$10 = 2x$

$\boxed{x = 5}$

3. Given this graph of the function $f(x)$:a. Write the domain of $f(x)$:

$x \in \mathbb{R}$

b. Write the range of $f(x)$:

$y \in (-\infty, 4]$

Evaluate each of the following:

c. $f(-2)$

$= 4$

d. $f(0)$

$f(0) = 3$

e. $f(2)$

$f(2) = -1$

f. x , when $f(x) = 4$

$x = -2$

g. x , when $f(x) = -1$

$x = 2$

4. Swine flu is attacking Porkopolis. The function below determines how many people have swine where t represents the time in days and S represents the number of people in thousands.

$S(t) = 9t - 4$

a. Find $S(4)$.

$S(4) = 9(4) - 4 \quad S(4) = 32$

b. What does $S(4)$ mean in the context of the problem?

After 4 days, 32 people had the swine flu

c. Find t when $S(t) = 23$.

$23 = 9t - 4$

$27 = 9t$

$t = 3$