

Domain:

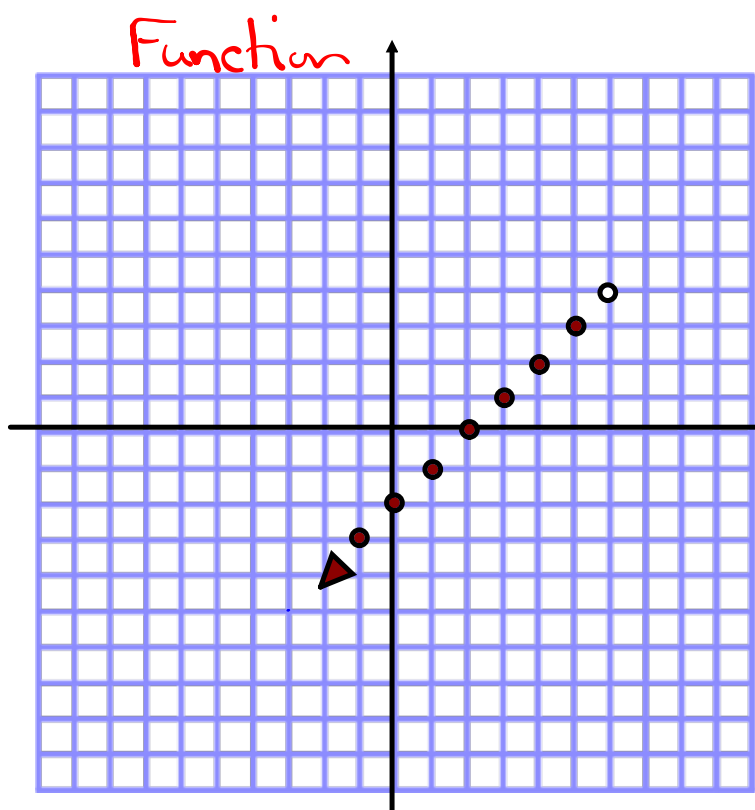
$$\{x \mid -\infty < x < \infty, x \in \mathbb{R}\}$$

$$\{x \mid x \in \mathbb{R}\}$$

Range:

$$\{y \mid 0 \leq y < \infty, y \in \mathbb{R}\}$$

$$\{y \mid y \geq 0, y \in \mathbb{R}\}$$



Domain:

$$\{x \mid -\infty < x < 6, x \in \mathbb{I}\}$$

$$\{x \mid x < 6, x \in \mathbb{I}\}$$

Range:

$$\{y \mid -\infty < y < 4, y \in \mathbb{I}\}$$

$$\{y \mid y < 4, y \in \mathbb{I}\}$$

Function Notation...

$$c(x) = 5x - 2$$

$$a(x) = 20 - x$$

$$t(x) = 3x + x$$

$$t(x) = 4x$$

Evaluate:

$$t(\underline{7})$$

$$c(x) = \underline{153}$$

$$c(\underline{11})$$

$$t(\underline{x}) = 4(\underline{x})$$

$$\underline{c(x)} = 5x - 2$$

$$c(\underline{x}) = 5\underline{x} - 2$$

$$t(\underline{7}) = 4(\underline{7})$$

$$\underline{153} = 5x - 2$$

$$c(\underline{11}) = 5(\underline{11}) - 2$$

$$t(\underline{7}) = \underline{28}$$

$$153 + \underline{2} = 5x$$

$$c(\underline{11}) = 55 - 2$$

$$\begin{array}{c} \uparrow \quad \uparrow \\ x=7 \quad y=28 \end{array}$$

$$\frac{155}{5} = \frac{5x}{5}$$

$$c(\underline{11}) = 53$$

$$(\underline{7}, \underline{28})$$

$$31 = x$$

$$(\underline{11}, \underline{53})$$

$$(\underline{31}, \underline{153})$$

$$c) h(x) = \underline{\underline{673}}$$

$$\underline{\underline{h(x)}} = 3x^2 - 2$$

$$\underline{\underline{673}} = 3x^2 - 2 \quad \begin{matrix} +2 \\ +2 \end{matrix}$$

$$\frac{\underline{\underline{675}}}{3} = \frac{\underline{\underline{3x^2}}}{3}$$

$$225 = x^2 \quad \leftarrow \text{take the square } (\sqrt{\quad})$$

root of both sides

$$\pm 15 = x$$

Homework

Finish worksheet

Page 294 #4, 6, 7, 8, 9, 10, 11, 12, 14

Finish Extra Practice

Extra Practice

1.

a) $g(10)$

$$g(x) = -3x + 1$$
$$g(10) = -3(10) + 1$$
$$g(10) = -30 + 1$$
$$g(10) = -29$$

b) $f(3)$

$$f(x) = x^2 + 7$$
$$f(3) = (3)^2 + 7$$
$$f(3) = 9 + 7$$
$$f(3) = 16$$

c) $h(-2)$

$$h(x) = \frac{12}{x}$$
$$h(-2) = \frac{12}{-2}$$
$$h(-2) = -6$$

d) $j(7)$

$$j(x) = 2x + 9$$
$$j(7) = 2(7) + 9$$
$$j(x) = 14 + 9$$
$$j(x) = 23$$

$$h(-2) = -6$$

$$e) h(a)$$

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

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

$$f) g(x) = 16$$

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

$$16 = -3x + 1$$

$$\frac{15}{-3} = \frac{-3x}{-3}$$

$$-5 = x$$

g) $h(x) = -2$
 $h(x) = \frac{12}{x}$
 $-2 = \frac{12}{x}$
 $-2x = \frac{12}{-2}$
 $x = -6$

h) $f(x) = 23$
 $f(x) = x^2 + 7$
 $23 = x^2 + 7$
 $\sqrt{16} = \sqrt{x^2}$
 $4 = x$

i) $g(b+c)$
 $g(x) = -3x + 1$

i) $g(b+c)$
 $g(x) = -3x + 1$
 $g(b+c) = -3(b+c) + 1$
 $g(b+c) = -3b - 3c + 1$

j) $f(h(x))$ $f\left(\frac{12}{x}\right)$
 $h(x) = \frac{12}{x}$ $f(x) = x^2 + 7$
 $f\left(\frac{12}{x}\right) = \left(\frac{12}{x}\right)^2 + 7$
 $f\left(\frac{12}{x}\right) = \frac{144}{x^2} + 7$

#2. a) $f(-1) = 1$
 $(-1, 1)$

b) $h(2) = 7$
 $(2, 7)$

c) $g(1) = -1$
 $(1, -1)$

d) $K(3) = 9$
 $(3, 9)$

$$\#3. a) f(-4) = 2$$

$$b) f(0) = 0$$

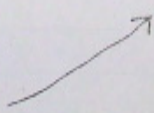
$$c) f(3) = -1.6$$

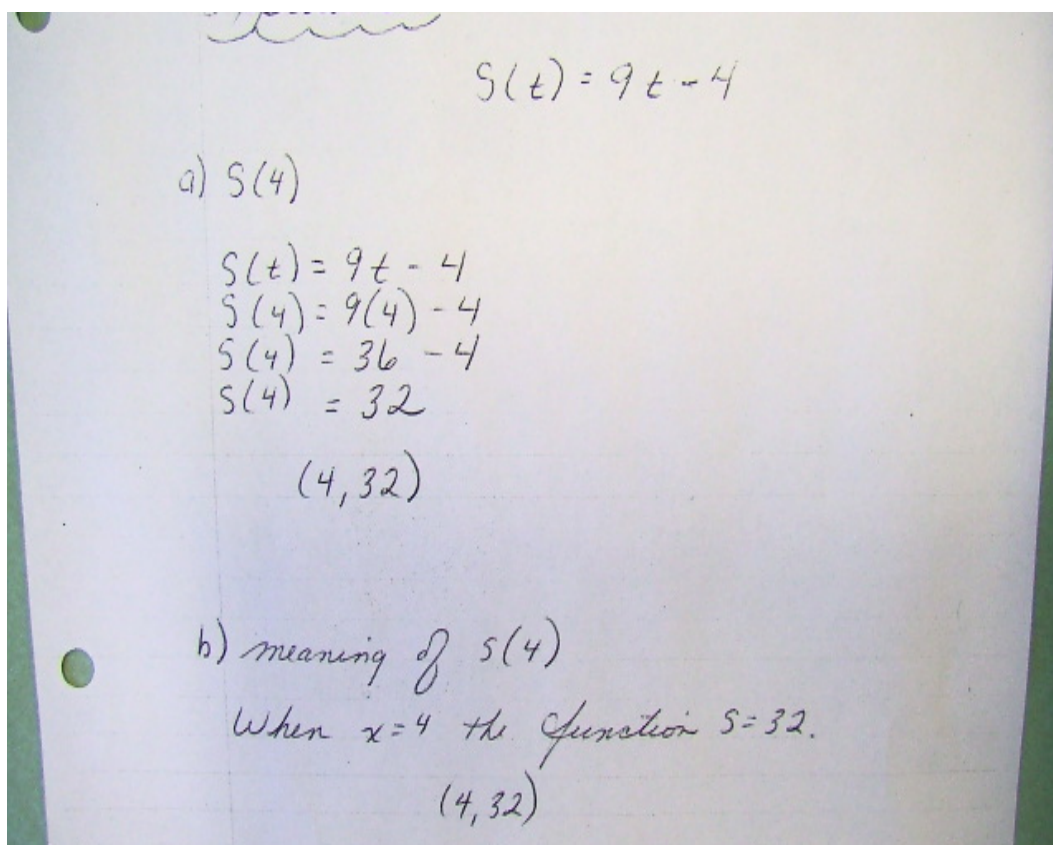
$$d) f(-5) = 0$$

$$e) \begin{aligned} f(x) &= 2 \\ f(-4) &= 2 \end{aligned}$$

$$f) f(x) = 0$$

$$\begin{aligned} f(-5) &= 0 \\ f(0) &= 0 \end{aligned}$$





$$c) s(t) = 23$$

$$s(t) = 9t - 4$$

$$23 + 4 = 9t - 4 + 4$$

$$27 = \frac{9t}{9}$$

$$3 = t$$

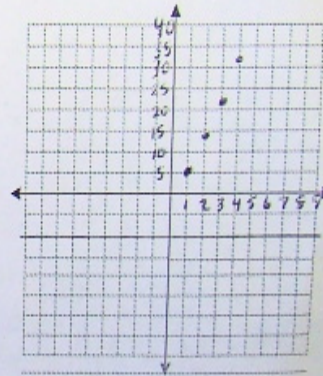
(3, 23)

APPLICATION

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

$$S(t) = 9t - 4$$

- a. Find $S(4)$.
- b. What does $S(4)$ mean?
- c. Find t when $S(t) = 23$.
- d. What does $S(t) = 23$ mean?
- e. Graph the function



... more points:

$$\begin{aligned} S(t) &= 9t - 4 \\ S(1) &= 9(1) - 4 \\ &= 9 - 4 \\ &= 5 \\ &(1, 5) \end{aligned}$$

$$\begin{aligned} S(t) &= 9t - 4 \\ S(2) &= 9(2) - 4 \\ &= 18 - 4 \\ &= 14 \\ &(2, 14) \end{aligned}$$