

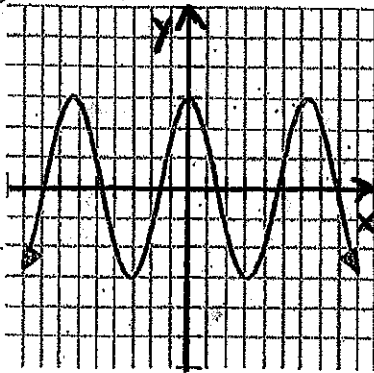
Domain and Range

Worksheet #1

\* BOTH NOTATIONS GIVEN  
(IF POSSIBLE) BUT ONLY ONE TYPE  
REQUIRED PER GRAPH. YOU NEED  
TO KNOW HOW TO WRITE BOTH!

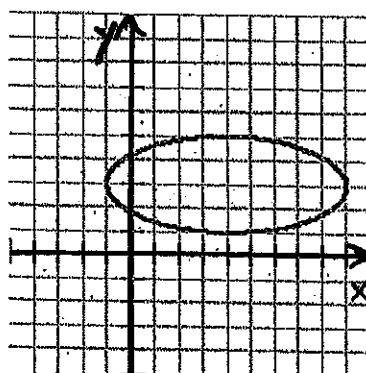
For each of the following, determine if the graph represents a function, the domain, and the range.

1)



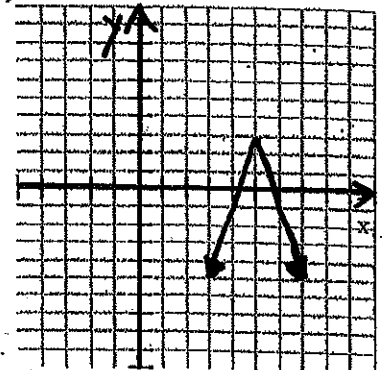
Function? Yes  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$   
Range:  $\{y | -3 \leq y \leq 3\}$   
 $[-3, 3]$

2)



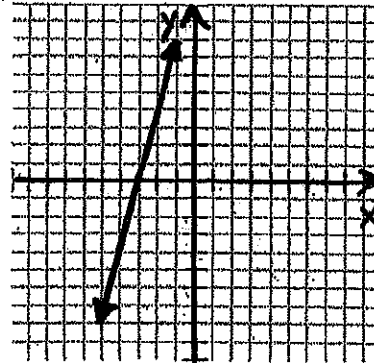
Function? No  
Domain:  $\{x | -1 \leq x \leq 9\}$   
 $[-1, 9]$   
Range:  $\{y | 1 \leq y \leq 5\}$   
 $[1, 5]$

3)



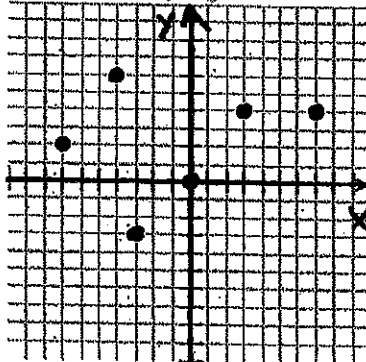
Function? Yes  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$   
Range:  $\{y | -\infty < y \leq 3\}$   
 $(-\infty, 3]$

4)



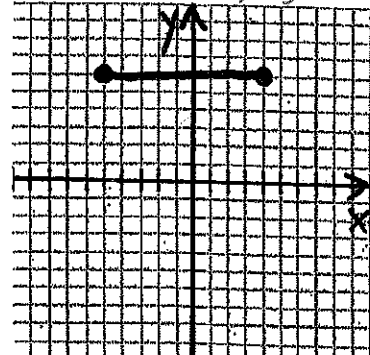
Function? Yes  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$   
Range:  $\{y | -\infty < y < \infty\}$   
 $(-\infty, \infty)$

5)



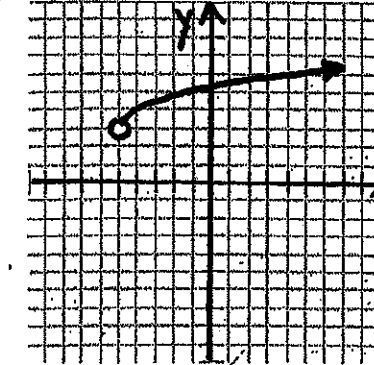
Function? Yes  
Domain:  $\{x | -7, -4, -3, 0, 3, 7\}$   
 $\{-7, -4, -3, 0, 3, 7\}$   
Range:  $\{-3, 0, 2, 4, 6\}$

6)



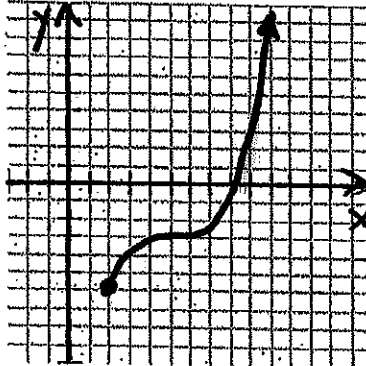
Function? Yes  
Domain:  $\{x | -5 \leq x \leq 4\}$   
 $[-5, 4]$   
Range:  $\{y | y = 6\}$   
 $\{6\}$

7)



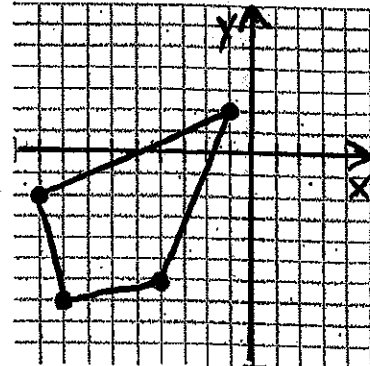
Function? Yes  
Domain:  $\{x | -5 < x < \infty\}$   
 $(-5, \infty)$   
Range:  $\{y | 3 < y < \infty\}$   
 $(3, \infty)$

8)



Function? Yes  
Domain:  $\{x | 2 \leq x < \infty\}$   
 $[2, \infty)$   
Range:  $\{y | -6 \leq y < \infty\}$   
 $[-6, \infty)$

9)



Function? No  
Domain:  $\{x | -9 \leq x \leq -1\}$   
 $[-9, -1]$   
Range:  $\{y | -7 \leq y \leq 2\}$   
 $[-7, 2]$

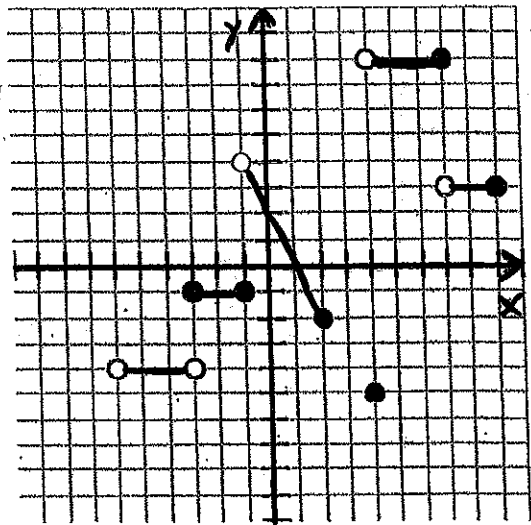
10) Given the graph, find the following:

a)  $f(0) = 2$       b)  $f(1) = 0$       c)  $f(-5) = -4$

d)  $f(3)$       e)  $f(-3) = -1$       f)  $f(5) = 8$

Does not exist

g)  $f(-2) = -1$       h)  $f(6) = 8$



\* BOTH NOTATIONS GIVEN (IF POSSIBLE)  
 BUT ONLY ONE TYPE PER GRAPH IS REQUIRED.  
 YOU NEED TO KNOW HOW TO DO BOTH!

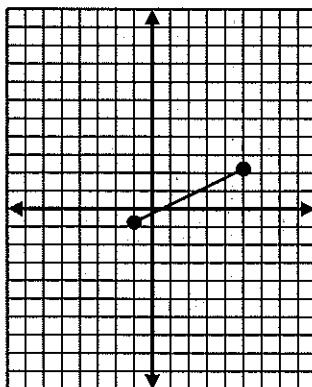
Domain and Range Worksheet #2

Name \_\_\_\_\_

Period \_\_\_\_\_

- For each problem:
- State the domain
  - State the range
  - Determine if the graph is a function

1.

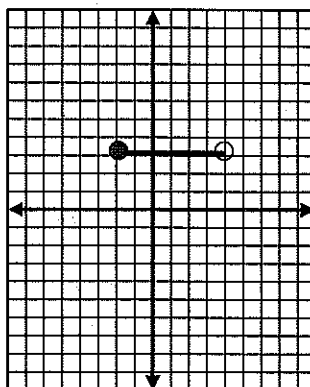


a)  $\{x \mid -1 \leq x \leq 2\}$   $[-1, 2]$

b)  $\{y \mid 0 \leq y \leq 1\}$   $[0, 1]$

c) Yes

2.

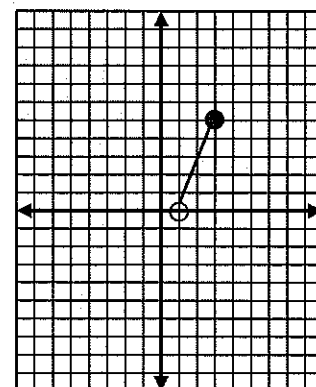


a)  $\{x \mid -2 \leq x \leq 4\}$   $[-2, 4]$

b)  $\{y \mid y = 3\}$   $\{3\}$

c) Yes

3.

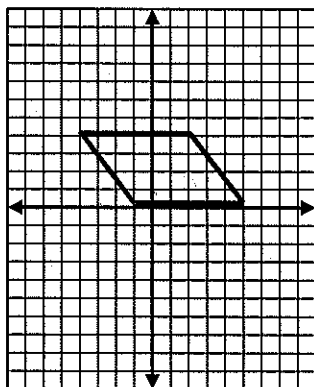


a)  $\{x \mid 1 < x \leq 2\}$   $(1, 2]$

b)  $\{y \mid 0 \leq y \leq 3\}$   $[0, 3]$

c) Yes

4.

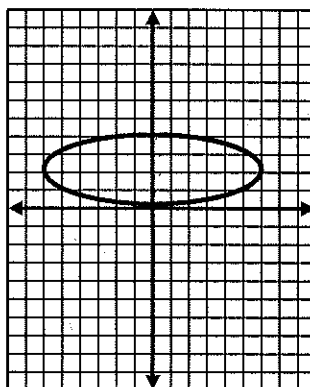


a)  $\{x \mid -2 \leq x \leq 3\}$   $[-2, 3]$

b)  $\{y \mid 0 \leq y \leq 1\}$   $[0, 1]$

c) No

5.

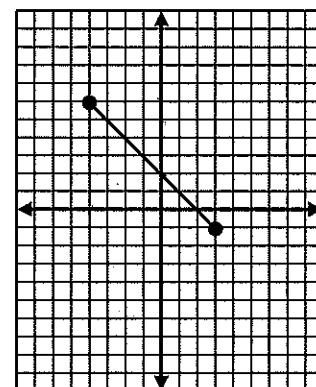


a)  $\{x \mid -6 \leq x \leq 6\}$   $[-6, 6]$

b)  $\{y \mid 0 \leq y \leq 4\}$   $[0, 4]$

c) No

6.

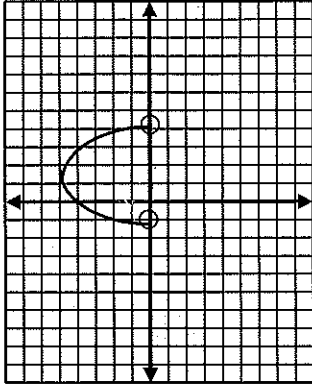


a)  $\{x \mid -4 \leq x \leq 3\}$   $[-4, 3]$

b)  $\{y \mid -1 \leq y \leq 3\}$   $[-1, 3]$

c) Yes

7.

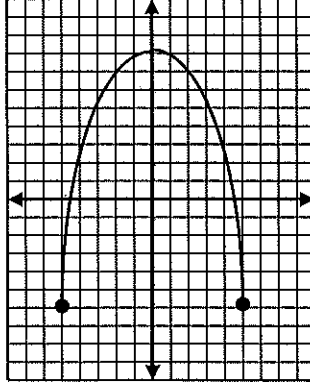


a)  $\{x \mid -5 \leq x < 0\}$   $[-5, 0)$

b)  $\{y \mid -1 < y < 4\}$   $(-1, 4)$

c) NO

8.

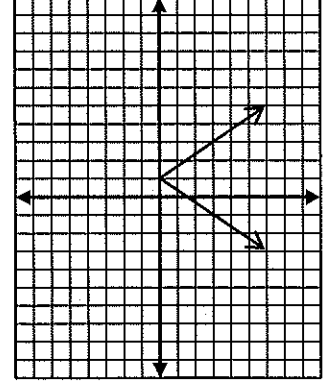


a)  $\{x \mid -5 \leq x \leq 5\}$   $[-5, 5]$

b)  $\{y \mid -6 \leq y \leq 8\}$   $[-6, 8]$

c) Yes

9.

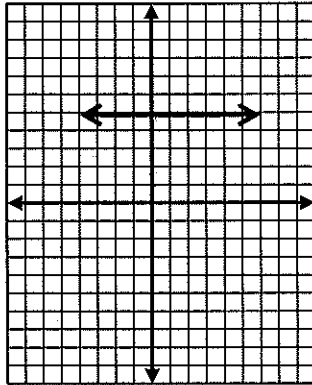


a)  $\{x \mid 0 \leq x < \infty\}$   $[0, \infty)$

b)  $\{y \mid -\infty < y < \infty\}$   $(-\infty, \infty)$

c) NO

10.

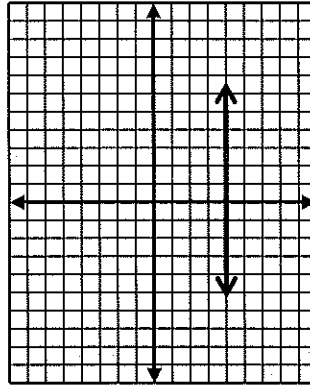


a)  $\{x \mid -\infty < x < \infty\}$   $(-\infty, \infty)$

b)  $\{y \mid y = 5\}$   $[5, 5]$

c) Yes

11.

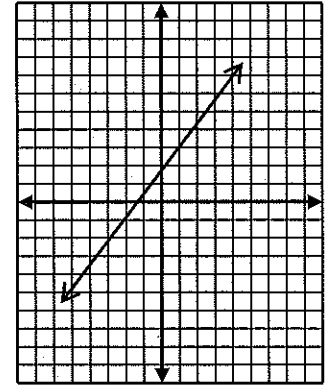


a)  $\{x \mid x = 4\}$   $[4, 4]$

b)  $\{y \mid -\infty < y < \infty\}$   $(-\infty, \infty)$

c) NO

12.



a)  $\{x \mid -\infty < x < \infty\}$   $(-\infty, \infty)$

b)  $\{y \mid -\infty < y < \infty\}$   $(-\infty, \infty)$

c) Yes

13. Tara's car travels about 25 miles on one gallon of gas. She has between 10 and 12 gallons of gas in the tank.

a) List the independent and dependent quantities.

Independent: gallons of gas

Dependent: Miles

b) Find the reasonable domain and range values.

$$\{x \mid 10 \leq x \leq 12\}$$

$$\{y \mid 250 \leq y \leq 300\}$$

c) Write the reasonable domain and range as inequalities.

14. Sal and three friends plan to bowl one or two games each. Each game costs \$2.50.

a) List the independent and dependent quantities.

Independent: games

Dependent: cost

b) Find the reasonable domain and range values.

$$\{x \mid 1 \leq x \leq 2\}$$

$$\{y \mid 2.50 \leq y \leq 5\}$$

c) Write the reasonable domain and range as inequalities.

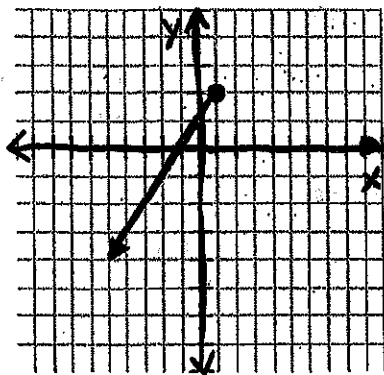
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Domain and Range

Worksheet #3

For each of the following, determine if the graph represents a function, the domain, and the range.

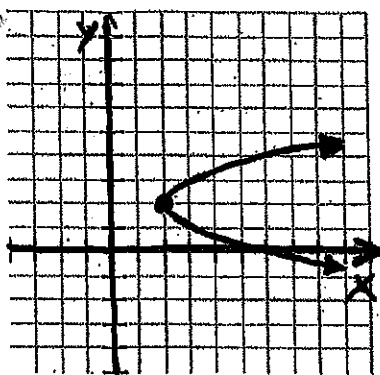
1)



Function? YES  
Domain:  $\{x | -\infty < x \leq 1\}$   
 $(-\infty, 1]$

Range:  $\{y | -\infty < y \leq 2\}$   
 $(-\infty, 2]$

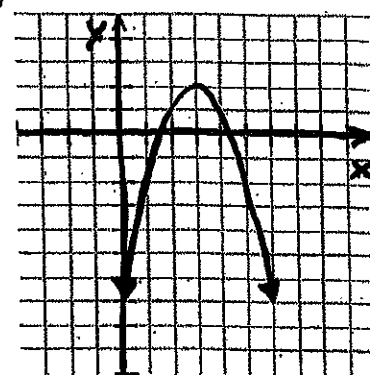
2)



Function? NO  
Domain:  $\{x | 2 \leq x < \infty\}$   
 $[2, \infty)$

Range:  $\{y | -\infty < y < \infty\}$   
 $(-\infty, \infty)$

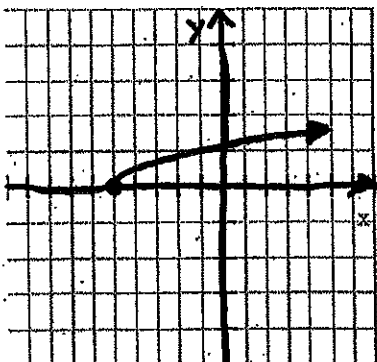
3)



Function? YES  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$

Range:  $\{y | -\infty < y \leq 2\}$   
 $(-\infty, 2]$

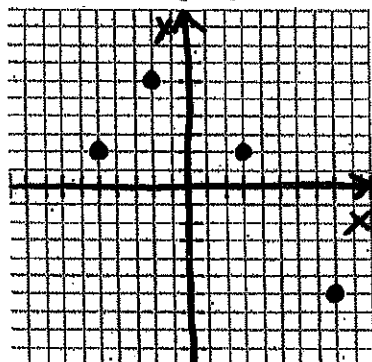
4)



Function? YES  
Domain:  $\{x | -5 \leq x < \infty\}$   
 $[-5, \infty)$

Range:  $\{y | 0 \leq y < \infty\}$   
 $[0, \infty)$

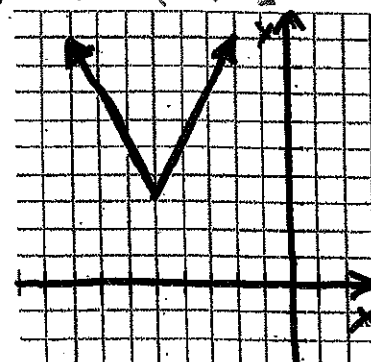
5)



Function? YES  
Domain:  $\{-1, 0, 1, 2\}$

Range:  $\{-1, 1, 2\}$

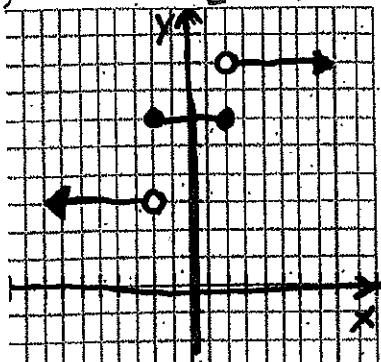
6)



Function? YES  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$

Range:  $\{y | 3 \leq y < \infty\}$   
 $[3, \infty)$

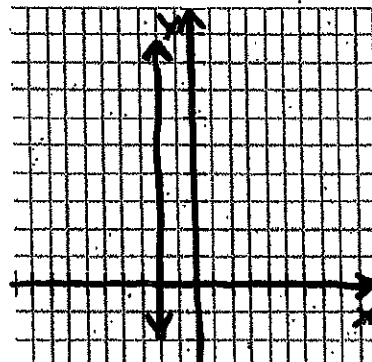
7)



Function? YES  
Domain:  $\{x | -\infty < x < \infty\}$   
 $(-\infty, \infty)$

Range:  $\{3, 6, 8\}$

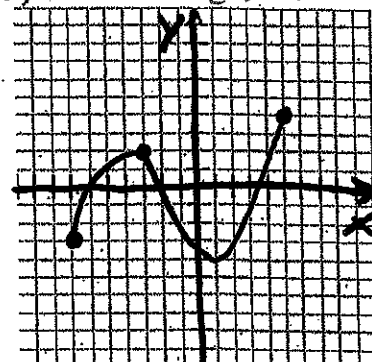
8)



Function? NO  
Domain:  $\{x | x = -2\}$

Range:  $\{y | -\infty < y < \infty\}$   
 $[-2, 2]$

9)



Function? YES  
Domain:  $\{x | -7 \leq x \leq 5\}$

Range:  $\{y | -4 \leq y \leq 4\}$   
 $[-4, 4]$

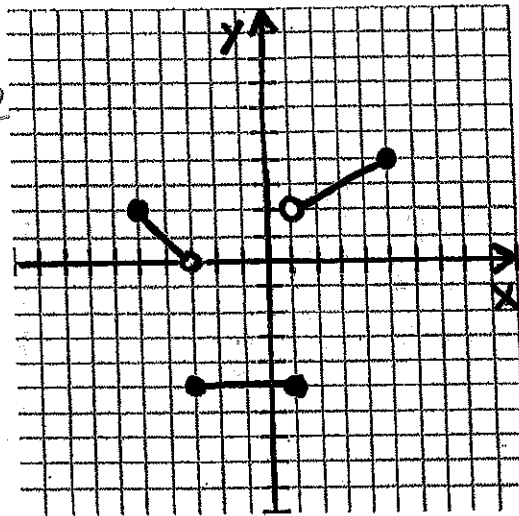
10) Given the graph, find the following:

a)  $f(0) = -5$       b)  $f(1) = -5$       c)  $f(-5) = 2$

d)  $f(3) = 3$       e)  $f(-3) = -5$       f)  $f(5) = 4$

g)  $f(-2) =$   
does not exist

h)  $f(6) =$   
does not exist



11) Suppose  $f(x) = 4x - 10$ ,  $g(x) = 2x^2 - 7$ ,  $h(x) = 3 - 5x$ . Evaluate each of the following:

a)  $f(2) = -2$

b)  $g(2) = 1$

c)  $h(2) = -7$

d)  $f(-2) = -18$

e)  $g(-2) = 1$

f)  $h(-2) = 13$

g)  $f(0) = -10$

h)  $g(6) = 65$

## Functions Worksheet 4

1. Let  $g(x) = -5x + 2$ . Evaluate each of the following:

(a)  $g(-1) = 8$

(b)  $g(-2) = 12$

(c)  $g(0) = 2$

(d)  $g(5) = -23$

2. Let  $f(x) = 2x + 2$ . Evaluate each of the following:

(a)  $f(-3) = -4$

(b)  $f(6) = 14$

(c)  $f(-1) = 0$

(d)  $f(4) = 10$

3. Let  $g(x) = x^2 + 4x - 1$ . Evaluate each of the following:

(a)  $g(-4) = -1$

(b)  $g(8) = 95$

(c)  $g(-1) = -4$

(d)  $g(1) = 4$

4. Let  $f(x) = 3x^2 - 5x$ . Evaluate each of the following:

(a)  $f(2) = 2$

(b)  $f(-8) = 232$

(c)  $f(7) = 112$

(d)  $f(-1) = 8$

5. Suppose  $f(x) = 4x - 2$ . Determine  $x$  such that:

(a)  $f(x) = 18$

$$x = 5$$

$$f(5) = 18$$

(b)  $f(x) = 0$

$$x = \frac{1}{2}$$

$$f\left(\frac{1}{2}\right) = 0$$

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

$$x = 0$$

$$f(0) = -2$$

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

$$x = \frac{5}{8}$$

$$f\left(\frac{5}{8}\right) = \frac{1}{2}$$

6. Suppose  $n(x) = 7x + 4$ . Determine  $x$  such that:

(a)  $n(x) = 39$

$$x = 5$$

$$n(5) = 39$$

(b)  $n(x) = 0$

$$x = -\frac{4}{7}$$

$$n\left(-\frac{4}{7}\right) = 0$$

(c)  $n(x) = 4$

$$x = 0$$

$$n(0) = 4$$

(d)  $n(x) = \frac{1}{3}$

$$x = -\frac{11}{21}$$

$$n\left(-\frac{11}{21}\right) = \frac{1}{3}$$

7. Suppose  $q(x) = -5x + 6$ . Determine  $x$  such that:

(a)  $q(x) = 21$

$$x = -3$$

$$q(-3) = 21$$

(b)  $q(x) = 0$

$$x = \frac{6}{5}$$

$$q\left(\frac{6}{5}\right) = 0$$

(c)  $q(x) = -6$

$$x = 0$$

$$q(0) = -6$$

(d)  $q(x) = \frac{1}{4}$

$$x = -\frac{23}{100}$$

$$q\left(-\frac{23}{100}\right) = \frac{1}{4}$$

8. Suppose  $g(x) = -3x + 8$ . Determine  $x$  such that:

(a)  $g(x) = 14$

$$x = -2$$

$$g(-2) = 14$$

(b)  $g(x) = 0$

$$x = \frac{8}{3}$$

$$g\left(\frac{8}{3}\right) = 0$$

(c)  $g(x) = -14$

$$x = +\frac{22}{3}$$

$$g\left(\frac{22}{3}\right) = -14$$

(d)  $g(x) = \frac{1}{5}$

$$x = \frac{13}{5}$$

$$g\left(\frac{13}{5}\right) = \frac{1}{5}$$