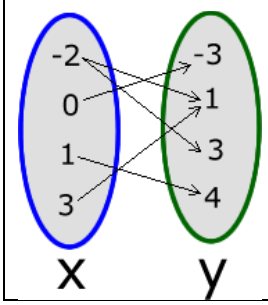
Section 3.1: Relations and functions

#1-4: Find the following:
a) Create the points implied by the relation.
b) Find the domain and range of the relation listed below.
c) Determine whether y is a function of x.

1)



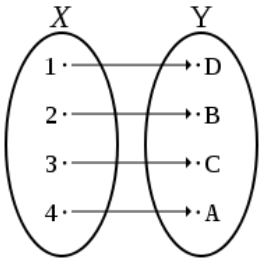
a) $\{(-2,1)\ (-2,3)\ (0,-3)\ (1,4)\ (3,1)\}$

b) domain $\{-2,0,1,3\}$

range $\{-3,1,3,4\}$

c) (Two points with same x)
y is not a function of x

3)



4

a) $\{(1,D)\ (2,B)\ (3,C)\ (4,A)\}$

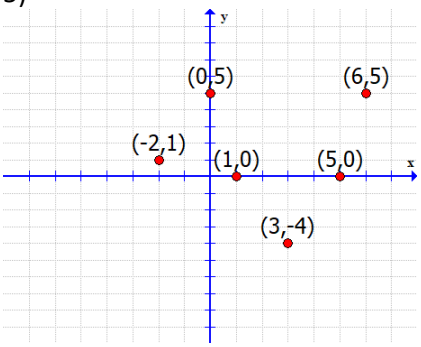
b) domain $\{1,2,3,4\}$

range $\{A,B,C,D\}$

c) y is a function of x
(all x's are different)

#5-8: Find the following:
a) Find the domain and range of the relation listed below.
b) Determine whether the if y is a function of x.

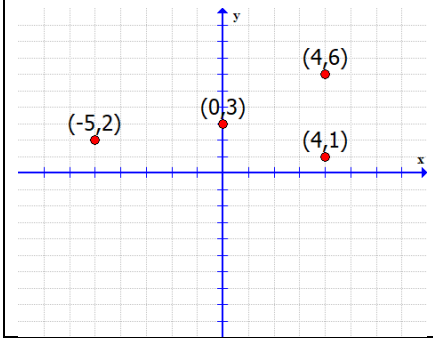
5)



a) domain
$\{-2, 0, 1, 3, 5, 6\}$
range
$\{-4, 0, 1, 5\}$

c) y is a function of x
(Each point has a different x)

7)



a) domain $\{-5, 0, 4\}$
range $\{1, 2, 3, 6\}$

b) y is NOT a function of x
(Two points with same x)

9) Find the following: $f = \{(3,-2),\ (5,6),\ (7,3),\ (1,-2),(4,1),\ (6,7)\}$

a) The domain of f $\{1,3,4,5,6,7\}$

b) The range of the f $\{-2,1,3,6,7\}$

c) $f(3)$ $f(3) = -2$

Point $(3,-2)$

d) $f(1)$ $f(1) = -2$

Point $(1,-2)$

e) all values of x such that $f(x) = -2$ $x = 1,3$

Points $(3,-2)$ & $(1,-2)$

f) all values of x such that $f(x) = 6$ $x = 6$

Point $(5,6)$

11) Find the following: $g = \{(9,2)\ (1,9)\ (4,1)\ (2,4)\ (6,1)\}$

a) The domain of g $\{1,2,4,6,9\}$

b) The range of the g $\{1,2,4,9\}$

c) $g(9)$ $g(9)=2$

Point $(9,2)$

d) $g(4)$ $g(4)=1$

Point $(4,1)$

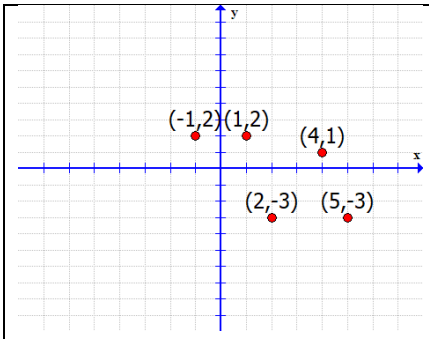
e) all values of x such that $g(x) = 9$ $x=1$

Point $(1,9)$

f) all values of x such that $g(x) = 1$ $x=4,6$

Points

$(4,1)$ $(6,1)$



13) Given the graph of f(x), find the following:

a) The domain of f

$\{-1, 1, 2, 4, 5\}$

b) The range of the f

$\{-3, 1, 2\}$

c) $f(2)$ $f(2) = -3$

Point $(2, -3)$

d) $f(1)$ $f(1) = 2$

Point $(1, 2)$

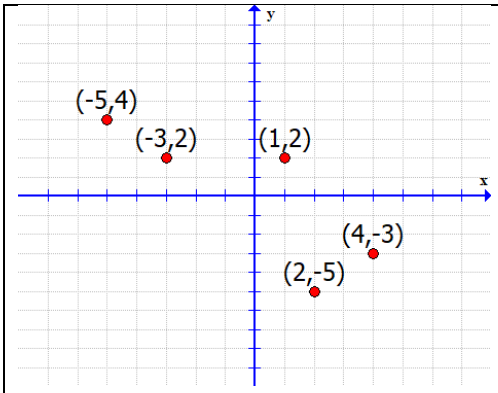
e) all values of x such that $f(x) = 2$ $x = -1, 1$

Points $(-1, 2)$ & $(1, 2)$

f) all values of x such that $f(x) = -3$ $x = 2, 5$

Points

$(2, -3)$ $(5, -3)$



15) Given the graph of g(x), find the following:

a) The domain of g $\{-5,-3,1,2,4\}$

b) The range of the g

$\{-5,-3,2,4\}$

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

Point $(2,-5)$

d) $g(4)$ $g(4) = -3$

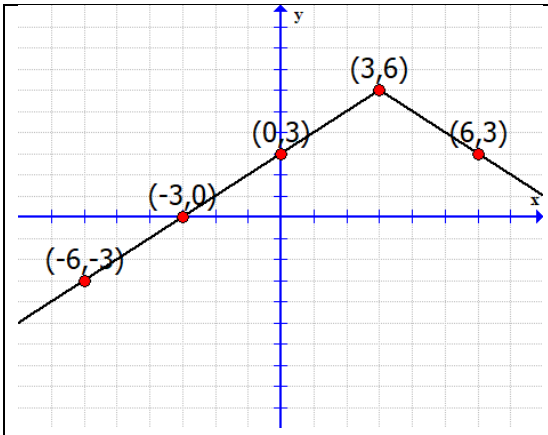
Point $(4,-3)$

e) all values of x such that $g(x) = 4$ $x = -5$

Point $(-5,4)$

f) all values of x such that $g(x) = -5$ $x = 2$

Point $(2,-5)$



17) Given the graph of g(x), find the following:

a) $g(3)$ $g(3) = 6$

Point (3,6)

b) $g(-3)$ $g(-3) = 0$

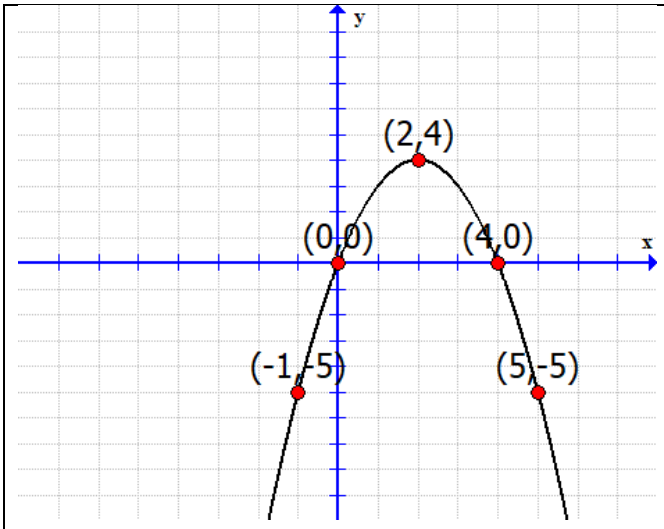
Point (-3,0)

c) all values of x such that $g(x) = 3$

Points (0,3) (6,3) $x = 0, 6$

d) all values of x such that $g(x) = 0$

Point (-3,0) $x = -3$



19) Given the graph of h(x), find the following:

a) $h(-1)$ $h(-1) = -5$

Point $(-1,-5)$

b) $h(2)$ $h(2) = 4$

Point $(2,4)$

c) all values of x such that $h(x) = -5$

Points $x = -1, 5$

$(-1,-5)$ & $(5,-5)$

d) all values of x such that $h(x) = 0$

Points $x = 0, 4$

$(0,0)$ & $(4,0)$