Ch 3 Practice Test Key

1) Determine the domain of the relation:

(-1, 4) , (-2, 4) , (-3, 4) , (0, 5)

↳ possibilities for x

{-3, -2, -1, 0}

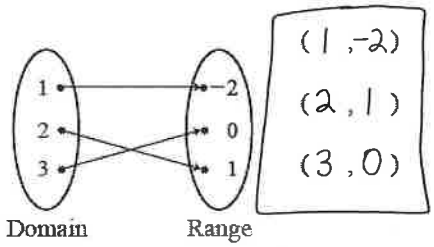
2) Determine the range of the relation:

(-1, 4) , (-2, 4) , (-3, 4) , (0, 5)

↳ possibilities for y

{4, 5}

3) Write the mapping diagram in ordered pair notation.

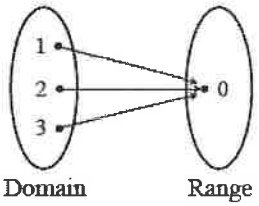


(1, -2)

(2, 1)

(3, 0)

4) Write the mapping diagram in ordered pair notation.



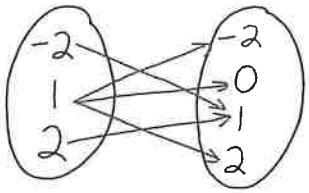
(1, 0)

(2, 0)

(3, 0)

5) Draw a mapping diagram for the ordered pair.

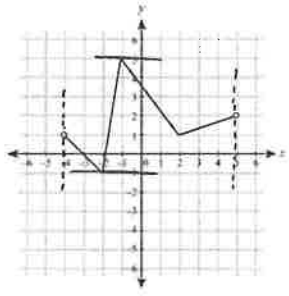
(1, 2) , (1, -2) , (1, 0) , (2, 1) , (-2, 1)



* numerical order

* don't list repeats!

6) Determine the domain and range



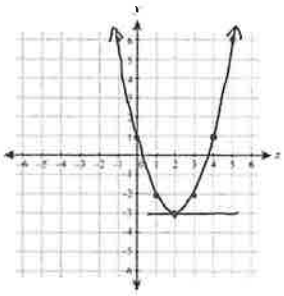
domain:

$-4 < x < 5$

range:

$-1 \leq y \leq 5$

7) Determine the domain and range



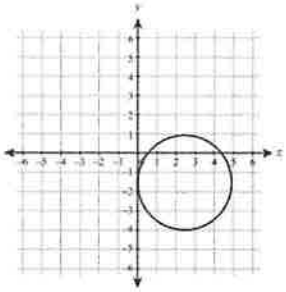
domain: "all real #'s"

$x \in \mathbb{R}$

range:

$y \geq -3$

8) Determine the domain and range



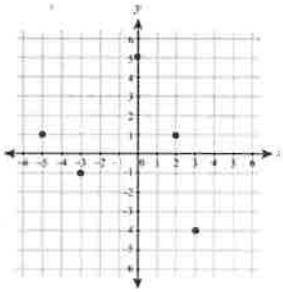
domain:

$0 \leq x \leq 5$

range:

$-4 \leq y \leq 1$

9) Determine the domain and range



domain:

$\{-5, -3, 0, 2, 3\}$

range:

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

* don't write repeats!

10) Are the following relations also functions?

a) (4, 2) , (3, 2) , (2, 2) , (1, 2) (Y)N

no repeats in domain

b) (2, 4) , (4, 2) , (1, 3) , (2, 1) Y(N)

repeated 2's in domain

c) (Mr. F, math) , (Ms. J, math) (Y)N

no repeats in domain

11) Are the following functions also one-to-one functions?

a) (3, 2) , (4, 3) , (5, 4) , (6, 5) (Y)N

no repeats...

b) (2, 4) , (4, 2) , (1, 3) , (3, 4) Y(N)

repeated 4's...

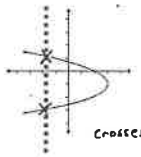
c) (Mr. F, math) , (Mr. Baker, PE) (Y)N

no repeats

12)

Apply the vertical line test to determine if the relation is a function.

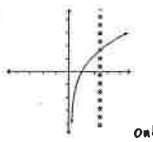
a)



crosses twice

Y(N)

b)



only crosses once anywhere

(Y)N

13) Graph the linear equation, and determine if it's a function

$$2x + 3y = -12$$

x-int (set y=0)

$2x+3(0)=-12$

$\frac{2x}{2} = \frac{-12}{2}$

$x = -6$

$(-6,0)$

y-int (set x=0)

$2(0)+3y=-12$

$\frac{3y}{3} = \frac{-12}{3}$

$y = -4$

$(0,-4)$

choose $x=-3$

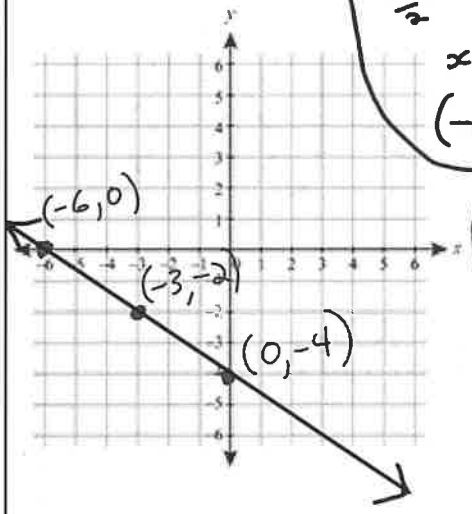
$2(-3)+3y=-12$

$-6+3y=-12$

$+6 \quad +6$

$\frac{3y}{3} = \frac{-6}{3}$

$y = -2$ so... $(-3,-2)$



Function: (Y)/N

14) Graph the linear equation, and determine if it's a function

$$4x - 5y = 20$$

x-int (y=0)

$4x-5(0)=20$

$\frac{4x}{4} = \frac{20}{4}$

$x = 5$

$(5,0)$

y-int (x=0)

$4(0)-5y=20$

$\frac{-5y}{-5} = \frac{20}{-5}$

$y = -4$

$(0,-4)$

choose $x=1$

$4(1)-5y=20$

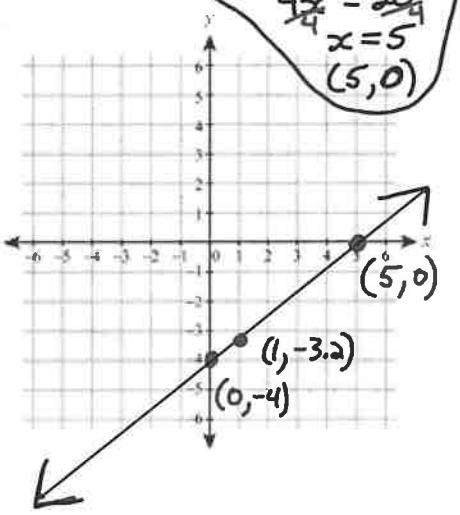
$\frac{4}{-4} - 5y = \frac{20}{-4}$

$\frac{-5y}{-5} = \frac{16}{-5}$

$y = \frac{16}{5}$

$y = -3.2$

$(1,-3.2)$



Function: (Y)/N

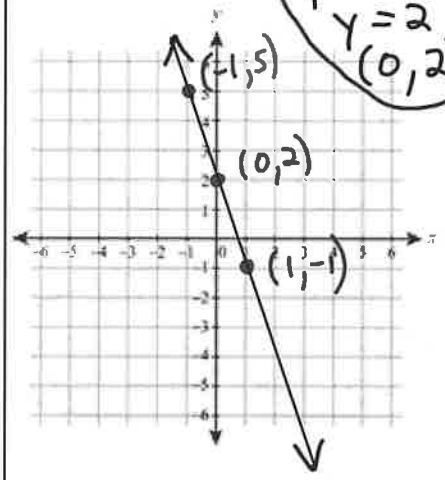
15) Graph the linear equation, and determine if it's a function

$$y = -3x + 2$$

$x = 0$
$y = -3(0) + 2$
$y = 2$
$(0, 2)$

$x = -1$
$y = -3(-1) + 2$
$y = 3 + 2$
$y = 5$
$(-1, 5)$

$x = 1$
$y = -3(1) + 2$
$y = -3 + 2$
$y = -1$
$(1, -1)$



Function: (Y)/N

16) Graph the linear equation, and determine if it's a function

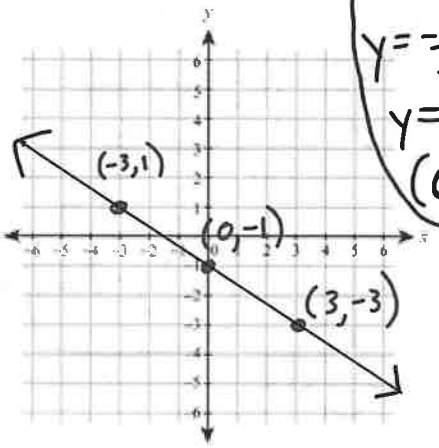
$$y = \frac{-2}{3}x - 1$$

pick 3 x's divisible by 3...

$x = 0$
$y = \frac{-2}{3}(0) - 1$
$y = -1$
$(0, -1)$

$x = -3$
$y = \frac{-2}{3}(3) - 1$
$y = 2 - 1$
$y = 1$
$(-3, 1)$

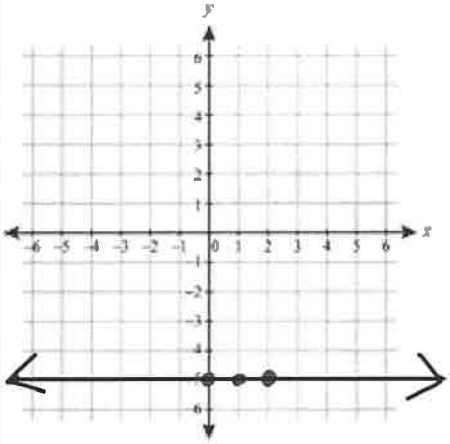
$x = 3$
$y = -\frac{2}{3}(3) - 1$
$y = -2 - 1$
$y = -3$
$(3, -3)$



Function: (Y)/N

17) Graph the linear equation, and determine if it's a function

$$y = -5$$



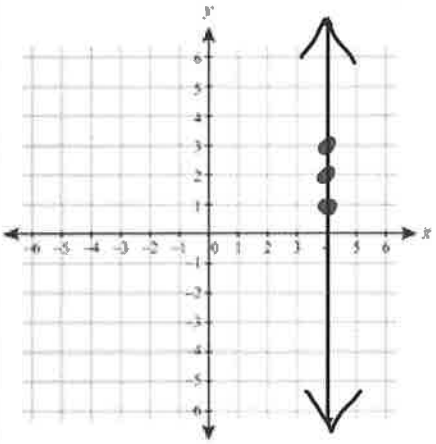
x	y
0	-5
1	-5
2	-5

horizontal line @ y=-5!

Function: (Y)/N

18) Graph the linear equation, and determine if it's a function

$$x = 4$$



x	y
4	1
4	2
4	3

vertical line @ x=4

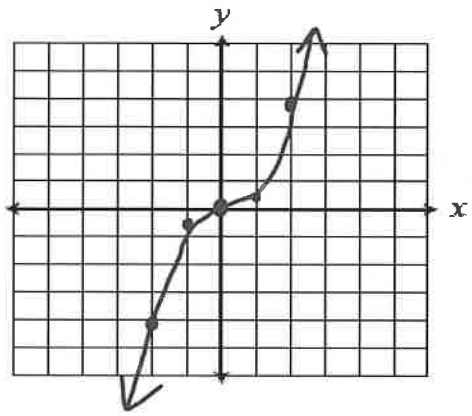
Function: Y/(N)

fails V.L.T.!

→ slide over graph

19)

Graph the non-linear equation, and determine if the relation is also a function by the vertical line test.



$$y = \frac{1}{2}x^3$$

Function (Y)/N

x	-3	-2	-1	0	1	2	3
y	-13.5	-4	$-\frac{1}{2}$	0	$\frac{1}{2}$	4	13.5

$\frac{1}{2}(-3)^3 = \frac{1}{2}(-27) = -13.5$

$\frac{1}{2}(-2)^3 = \frac{1}{2}(-8) = -4$

$\frac{1}{2}(-1)^3 = \frac{1}{2}(-1) = -\frac{1}{2}$

$\frac{1}{2}(1)^3 = \frac{1}{2}$

$\frac{1}{2}(2)^3 = \frac{1}{2}(8) = 4$