Lesson 8.1- SWBAT determine if a relation is a function.

Kick off-

1) Solve by completing the square: $x^2 - 6x + 5 = 6x - 6$

$-6x-5 \quad -6x-5$

Steps: $ax^2+bx=c$ $\quad x^2-12x=-11$

① $a=1$

② $\left(\frac{1}{2}b\right)^2$ add to both $\quad \left(\frac{1}{2}(-12)\right)^2=(-6)^2=36$

$x^2-12x+36=-11+36$

③ Factor $\left(\frac{1}{2}b\right)$ $\quad (x-6)(x-6)=25$

④ square $\quad \sqrt{(x-6)^2}=\sqrt{25}$

⑤ square root

⑥ Solve for x. $\quad x-6=\pm 5$

$x-6=+5$

$+6 \quad +6$

$x=11$

$x-6=-5$

$+6 \quad +6$

$x=1$

Definitions:

Ordered Pair- point (x,y) that can be graphed. (0,2)

Relation- Anything that can be written as (x,y).

Domain- any possible x-values (1st # in point)

Range- any possible y-values (2nd # in the point)

Function- a relation where the domain (x) occurs only ONCE for each range (y).

*x never repeats!

1) Using the relation: {(1,3), (2,5), (3,10), (0,0)} Determine

a. Domain- 1, 2, 3, 0

b. Range- 3, 5, 10, 0

c. Function or Relation

because the domain doesn't repeat!

2) Using the relation: {(−2,3), (5,3), (1,6), (5,2)} Determine

a. Domain- -2, 5, 1, 5

b. Range- 3, 3, 6, 2

c. Function or Relation

because 5 repeated in the domain!

Determine which relation is a function. → Only look at x-values!

1)

x	y
0	-4
1	-1
2	2
3	5
4	8

Function

2)

x	y
0	1
2	1
4	1
6	1
8	1

Function

3)

x	y
0	5
1	6
2	7
1	8
0	9

Relation

4)

x	y
12	-2
10	-1
8	0
10	1
6	2

Relation

Mapping Diagrams $x \rightarrow y$

5)

x	y
5	4
6	3
7	2
8	1

Function!

(5,4)
(6,3)
(7,2)
(8,3)

6)

x	y
3	4
8	3
5	2
8	0

(3,4)
(3,0)
Relation!

7)

x	y
2	3
3	4
	5
	6

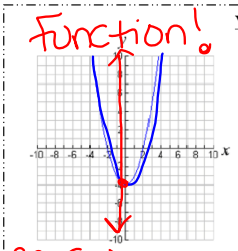
Relation

8)

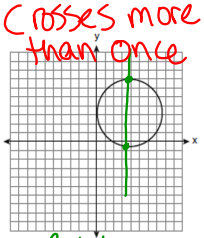
Domain	Range
Sue	Blue
Joe	Red
Emma	Pink
Lilly	

Relation

Function! Vertical Line Test Crosses more than once

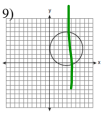


Cross once



Relation

State whether the relations are functions:

9) 

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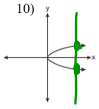
10) 

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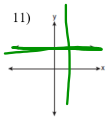
11) 

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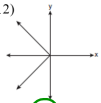
12) 

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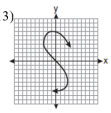
13) 

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State if the following is a function:

{ (-1, 4), (4, 2), (-3, 3), (-1, 6)}

① Domain

② Range

③ Function or Relation and why?