Relation: A set of x's that go with a set of y's

Domain: All the x's (input)

Range: All the y's (output)

Set Notation: how we write domain & range

{ list all the numbers with commas } no repeats }

Example 1: Write the domain and range of each relation in set notation.

A. $f = \{(-1,0),(0,5),(7,-9)\}$ x y x y x y

D = {-1, 0, 7}

R = {0, 5, -9}

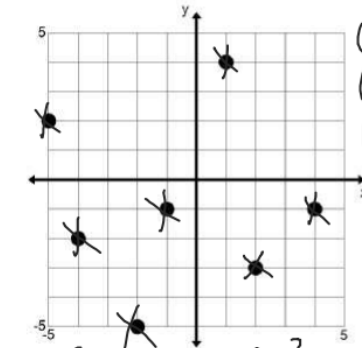
B.

x	y
-1	6
0	9
8	15

D = {-1, 0, 8}

R = {6, 9, 15}

C.



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

D = {-2, -1, -4, -5, 1, 2, 4}

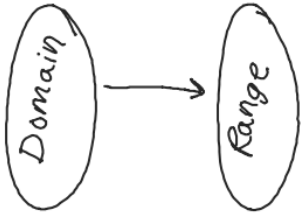
R = {-5, -1, -2, 2, 4, -3}

T

Sec1 | Notes 4-1 Domain and Range | Unit 4

Function: A relation where every x has only 1 y

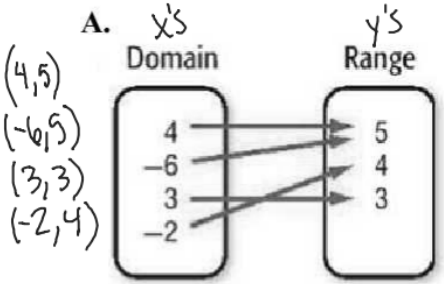
Mapping:
Function if every x only has one arrow



*Do not write repeats in the ovals!

Example 2: Write the following relations as a set of ordered pairs and then determine if it represents a function.

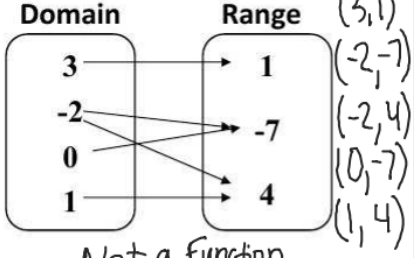
A.



(4,5)
(-6,5)
(3,3)
(-2,4)

Yes

B.

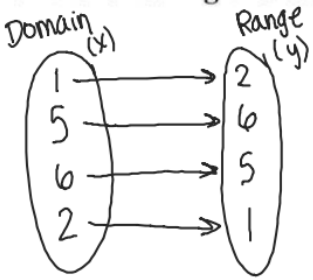


(3,1)
(-2,-7)
(-2,4)
(0,-7)
(1,4)

Not a Function
-2 repeat

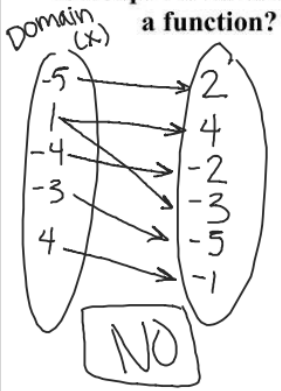
Example 3: Create a mapping for the following and determine if it is a function.

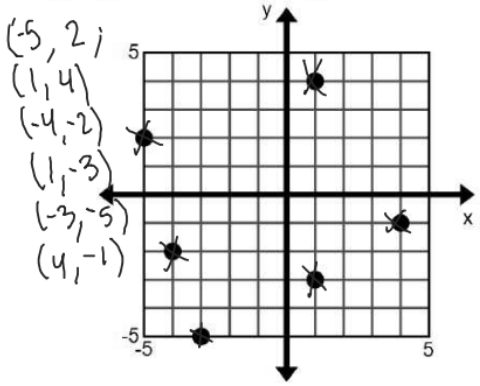
$\{(1,2),(5,6),(6,5),(2,1)\}$



Yes

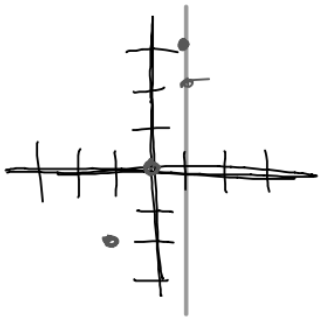
Example 4: Create a mapping for the following relation. Is it a function?





Vertical Line Test:

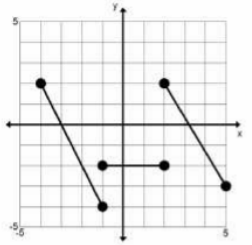
It is a function if you can draw a vertical line anywhere on the graph and never touch more than once.



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

Example 5: Determine which of the following relations represent functions.

A.



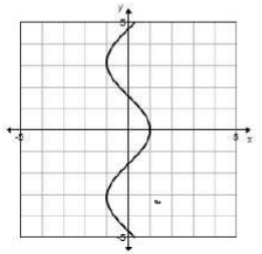
NO

B.

x	y
-1	4
0	9
8	4
10	6

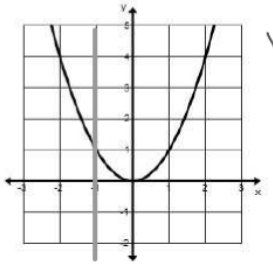
Yes

C.



NO

D.



Yes

HOW DO YOU CHECK IF IT IS A FUNCTION?

GRAPH	TABLE or LIST	MAPPING
Vertical Line Test	No repeats of x's (domain)	Every x has only one arrow