

Vocabulary:

- Function: for every input we get only one output  
(not have x repeats)
- Domain: input values or x-values  
 $D: \{ \text{small} \rightarrow \text{big, no repeats} \}$
- Range: output values or y-values  
 $R: \{ \text{small} \rightarrow \text{big, no repeats} \}$

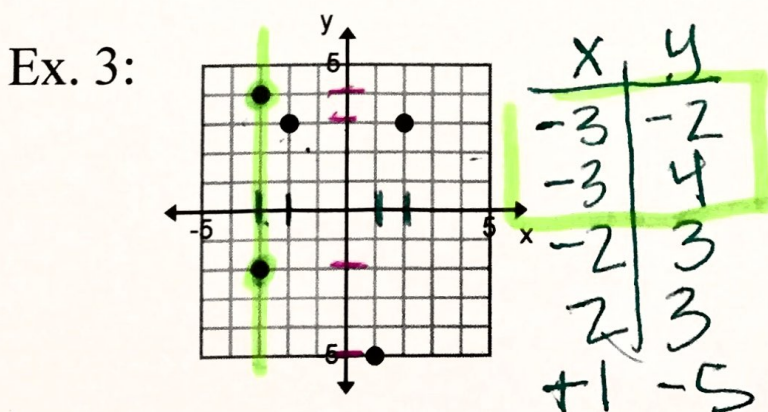
Determine if the following relationships are functions and then state the domain and range.

Ex 1:  $\{(\underline{3}, 6), (\underline{4}, 10), (\underline{8}, 12), (\underline{2}, 6)\}$  Function  
 $D: \{2, 3, 4, 8\}$   
 $R: \{6, 10, 12\}$

Ex. 2:

distance	days
6	2
10	4
6	5
9	8

Not a Function  
 $D: \{6, 9, 10\}$   
 $R: \{2, 4, 5, 8\}$



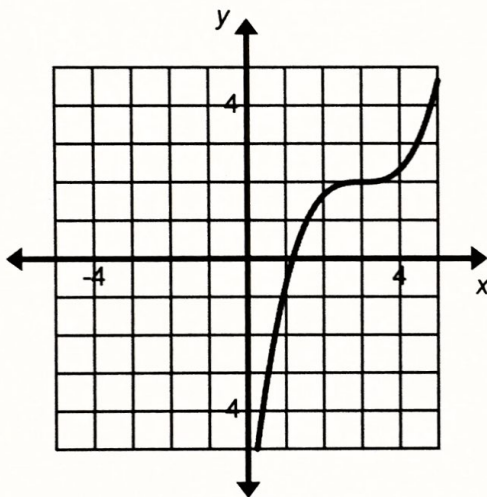
Not a function  
 $D: \{-3, -2, 1, 2\}$   
 $R: \{-5, -2, 3, 4\}$

**Vertical Line Test:**

If you can draw a vertical line anywhere on the graph & it hits the curve/line/points more than once it is NOT a function.

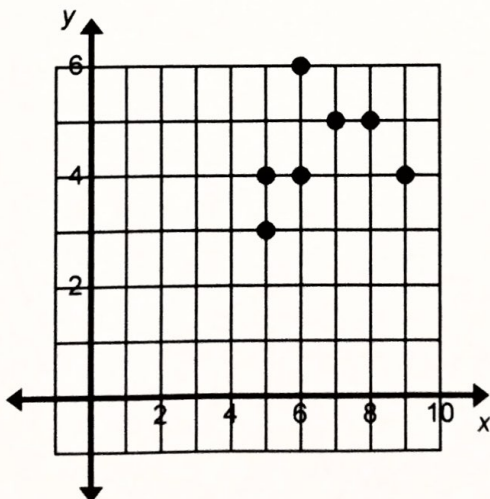
**Use the vertical line test to determine if the relation is a function.**

Ex. 6:



Function

Ex. 7:



Not a function.  
Doesn't pass VLT

Practice:

Determine whether each relation is a function. If not, explain.

Ex. 8:  $\{(3,4), (-2,5), (2,5), (-3,2)\}$  Function,  
only 1 output for each  
input

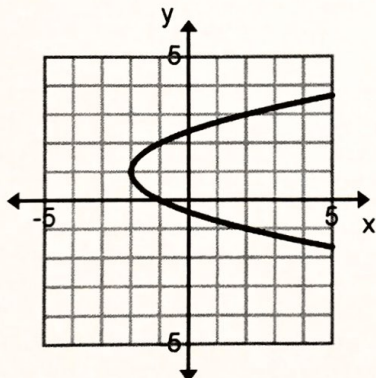
Ex. 9:  $\{(9,2), (5,1), (6,-3), (5,6)\}$  Not a Function,  
@  $x=5$  there are 2 output

Ex. 10:

$x$	2	-7	9	12	18
$y$	5	3	5	-2	-3

Function  
only 1 output for each  
input

Ex. 11:



Not a Function  
does not pass VLT