

Vocabulary:

- Function: Every input has EXACTLY ONE output
- Domain: all possible input values  
X's
- Range: all possible output values  
y's

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

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

Ex. 2: 

distance	days
6	2
10	4
6	5
9	8

 $D: \{6, 9, 10\}$   $R: \{2, 4, 5, 8\}$

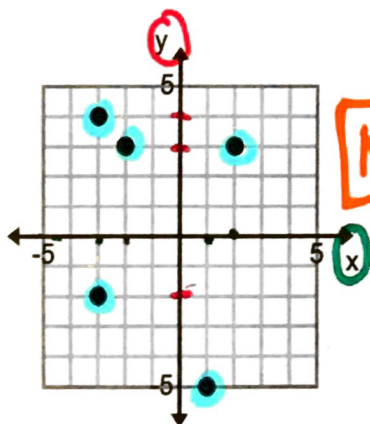
**Yes**

because all the x values are different

**NO**

because the input value 6 has 2 different outputs.

Ex. 3:



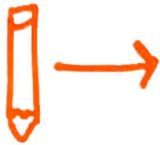
**NO**

because it fails the Vertical Line Test.

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

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

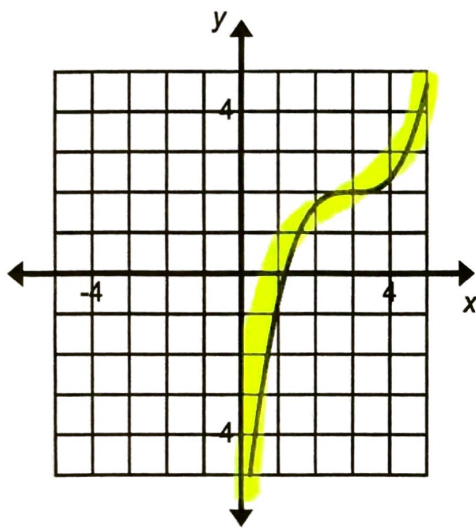
Vertical Line Test:

take a card/pencil  side from left to right

\* PASS : if only 1 part of the graph hits at a time.

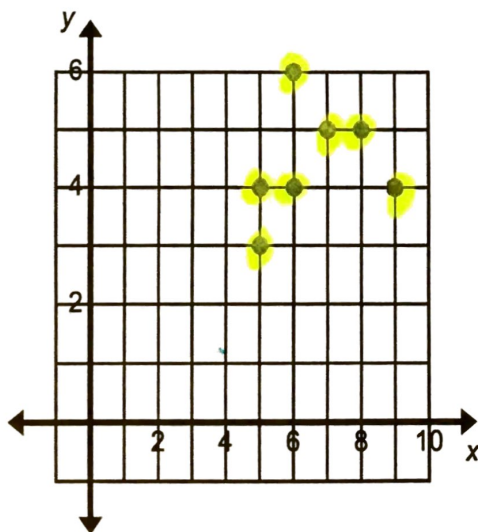
Use the vertical line test to determine if the relation is a function.

Ex. 6:



Yes, because it passes the V.L.T.

Ex. 7:



NO. Failed the V.L.T.

$D: \{5, 6, 7, 8, 9\}$

$R: \{3, 4, 5, 6\}$

## Notes 3-1

Int 2

### Introduction to Functions

Unit 3

Practice:

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

Ex. 8:  $\{(3,4), (-2,5), (2,5), (-3,2)\}$   $D: \{-3, -2, 2, 3\}$

**Yes** all of the x values are different

$R: \{2, 4, 5\}$

Ex. 9:  $\{(9,2), (5,1), (6,-3), (5,6)\}$   $D: \{5, 6, 9\}$

**NO** because the input value of 5 has 2 different outputs.

$R: \{-3, 1, 2, 6\}$

Ex. 10:

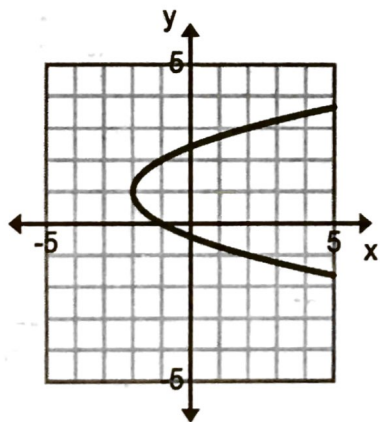
x	2 ✓	-7 ✓	9 ✓	12 ✓	18 ✓
y	5	3	5	-2	-3

**Yes** because all input values are different.

$D: \{-7, 2, 9, 12, 18\}$

$R: \{-3, -2, 3, 5\}$

Ex. 11:



**NO** because it fails the V.L.T.