

9/24 Algebra 1 - Downing

Bellwork - Plot points on graph

3.1 - Relations, Functions, Domain + Range

Relation: pairs inputs (x) with outputs (y)

Function: a relation that pairs each input (x) with EXACTLY ONE output (y)

\* Your (x) cannot repeat.

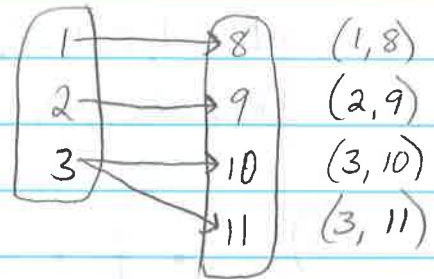
\* Function or not a function?

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

yes this is a function

x	y
8	0
8	1
8	2
8	3

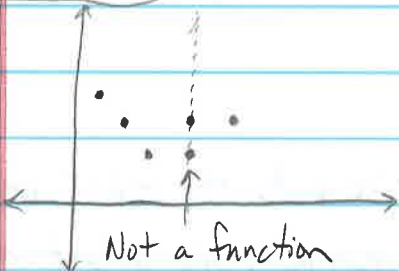
Not a Function  
(8 has more than one output)



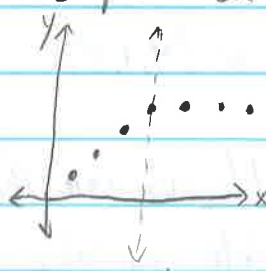
Not a Function  
(3 has more than one output)

Vertical Line Test

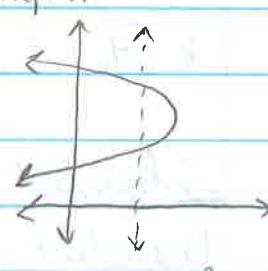
- a graph represents a function when no vertical line passes through more than one point on the graph.



Vertical Line Test  
(Same x value)



Function



Not a function

1. Not a function  $(-5, 0), (0, 0), (5, 0), (5, 10)$     5. Function  $\dots$

2. Function  $(-4, 8), (-1, 2), (2, -4), (5, -10)$     6. Function  $\curvearrowright$

3. Function 

x	y
2	2.6
4	5.2
6	7.8

    7. Not a Function  $\square$

4. Not a Function    8. Function  $\curvearrowright$

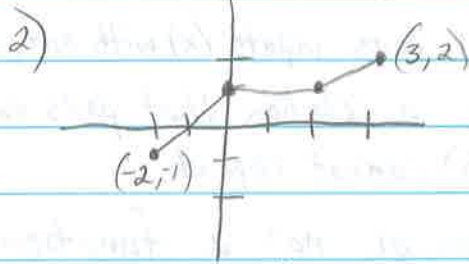
Domain: all  $x$  values

Range: all  $y$  values



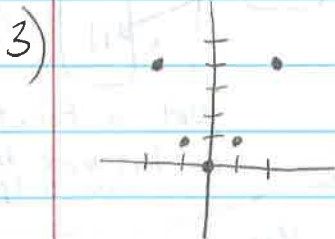
$$D: \{-1, 0, 1, 2\}$$

$$R: \{-2, -1, 0, 1\}$$



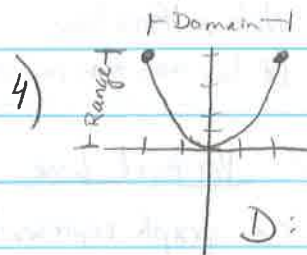
$$D: \{-2 \leq x \leq 3\}$$

$$R: \{-1 \leq y \leq 2\}$$



$$D: \{-2, -1, 0, 1, 2\}$$

$$R: \{4, 1, 0, 1, 4\} \text{ or } \{4, 1, 0\}$$



$$D: \{-2 \leq x \leq 2\}$$

$$R: \{0 \leq y \leq 4\}$$

Independent Variable: variable that represents the input values ( $x$ )

Dependent Variable: variable that represents the output values ( $y$ )  
\* it depends on the value of the independent variable.

Ex) The function  $y = -3x + 12$  represents the amount  $y$  (in fluid oz.) of juice that remains in a bottle after you take  $x$  gulps

Independent: " $x$ " gulps      Dependent: " $y$ " amount

Domain is 0, 1, 2, 3, what is the range?

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

$$y = 12$$

$$y = -3(1) + 12$$

$$y = 9$$

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

$$y = 6$$

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

$$y = 3$$

$$R: \{3, 6, 9, 12\}$$

HW - p. 108 #4-18 on book website Due Wed.