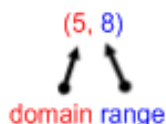


## 6-4 Functions

A relation is a set of ordered pairs.

The **domain** of a relation is the set of first coordinates of the ordered pairs.

The range is the set of second coordinates.



The function is a relation that assigns exactly **one value in the domain** to each value in the range.

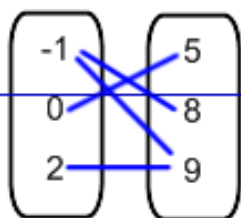
One way you can tell whether a relation is a function is to analyze the graph of the relation using the vertical-line test.

### Listing

$\{(2, 3)(-3, -6)(6, 8)(0, 4)\}$

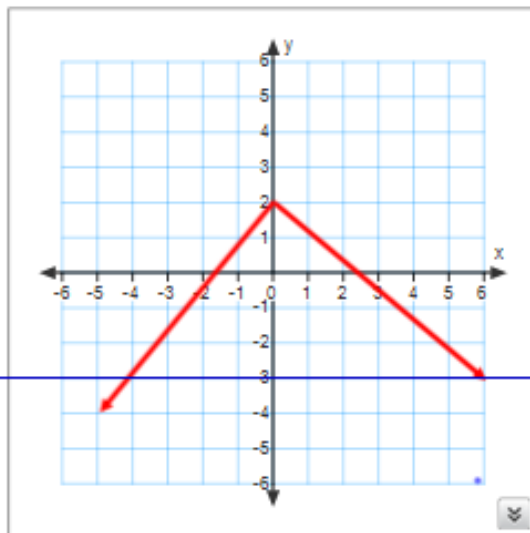
↑ ↑ ↑ ↑  
 Look at the domains to determine if it is a function or not.  
 All different: Function  
 Any the same: Not a Function

### Mapping



not a function  
 2 lines coming out on the -1 domain

### Coordinate



Function: no 2 points cross vertical line test.

### Table

X	Y
2	3
-3	-6
6	8
0	4

Evaluate each function rule for  $f(x) = 3x + 2$  or  $g(x) = -5x - 2$

$$f(-2)$$

$$\downarrow$$

$$3(-2) + 2$$

$$g(5)$$

$$\downarrow$$

$$-5(5) - 2 \quad \text{Solve}$$