

What Is a Function?

A relation is a rule that takes input values and assigns them to output values. A relation is a **function** if every input value has exactly one output value. You can represent relations with sets of ordered pairs, mappings, and tables.

Let's try it! Determine if the two relations below are functions.

Relation A:

Ordered pairs:

(2, 4), (3, 10), (4, 8), (5, 6)

Mapping:

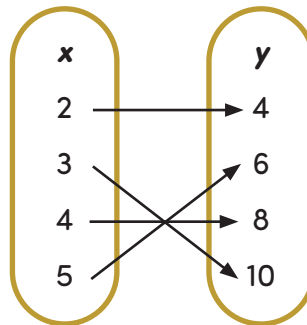


Table:

x	y
2	4
3	10
4	8
5	6

Every input, or x-value, has exactly one output, or y-value. So, this relation is a function.

Relation B:

Ordered pairs:

(8, 12), (10, 14), (8, 13), (12, 16)

Mapping:

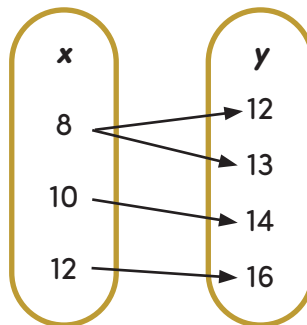


Table:

x	y
8	12
10	14
8	13
12	16

The input value 8 has two output values. So, this relation is **not** a function.

Time to practice! Determine if each relation is a function. Circle the correct answer.

(3, 1), (9, 3), (21, 7), (27, 9)

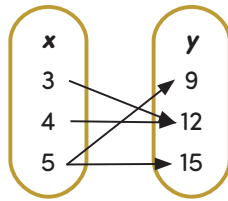
Is this relation a function? Yes No

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

Is this relation a function? Yes No

What Is a Function?

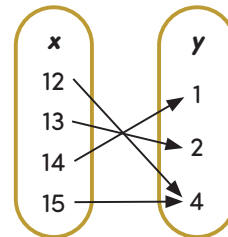
Keep going! Determine if each relation is a function. Circle the correct answer.



Is this relation a function? Yes No

x	60	58	64	58
y	-19	12	14	-12

Is this relation a function? Yes No



Is this relation a function? Yes No

x	80	64	48	32
y	10	8	6	4

Is this relation a function? Yes No

Challenge! In each row below, you are given the same incomplete relation twice. Follow the directions to make a relation that is a function or not a function.

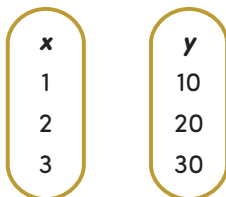
Add a new ordered pair so that the relation is a function.

(3, 4), (5, 6), (7, 8), (_____ , _____)

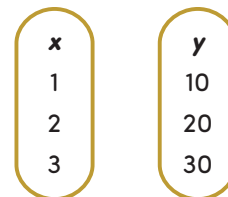
Add a new ordered pair so that the relation is **not** a function.

(3, 4), (5, 6), (7, 8), (_____ , _____)

Draw arrows to make a relation that is a function.



Draw arrows to make a relation that is **not** a function.



Complete the table so that the relation is a function.

x	70	60	50	
y	15	20	25	

Complete the table so that the relation is **not** a function.

x	70	60	50	
y	15	20	25	