FUNCTIONS

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.
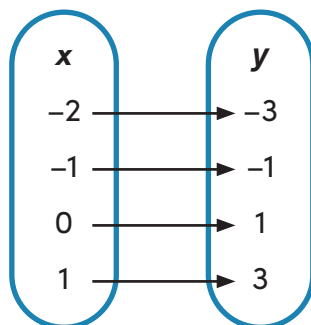
FUNCTION

Here is an example of a function, shown in 4 different ways:

Ordered Pairs
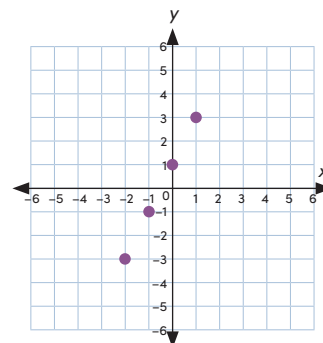
(–2, –3), (–1, –1), (0, 1), (1, 3)

Mapping

x	y
–2 → –3
–1 → –1
0 → 1
1 → 3

Table

x	y
–2	–3
–1	–1
0	1
1	3

Graph

Every input, or *x*-value, has exactly one output, or *y*-value.
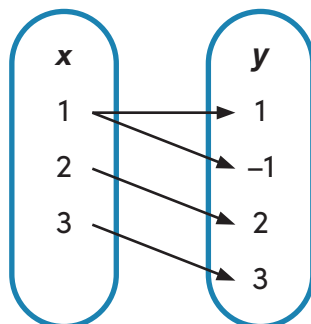
NOT A FUNCTION

Here is an example of a relation that is not a function, shown in 4 different ways:

Ordered Pairs

(1, 1), (1, –1), (2, 2), (3, 3)

Mapping

x	y
1	1
2	–1
3	2
	3

Table

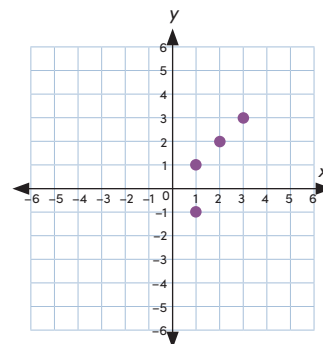| x	y
1	1
1	–1
2	2
3	3

Graph

Since at least one of the input values in this relation has more than one output value, it is not a function.