

Patterns and Tables

Is the relation a function?

In Example A, there is just one y -value for each x -value. The relation is a function.

In Example B, two y -values, 3 and 0, are assigned to the x -value, -1 . So, the relation is not a function.

Example A

x	y
-3	1
-2	2
-1	3
0	4

Example B

x	y
-1	3
-2	-1
0	1
-1	0

Writing a rule for a function:

x	y
-5	10
-2	4
0	0
3	-6

What can I do to -5 to get 10?

I can multiply by -2 .

Does the rule "multiply by -2 " work with other numbers?

$-2(-2) = 4$. Yes

$3(-2) = -6$. Yes

The rule is $y = -2x$.

Tell whether each relation is a function.

1.

x	y
5	2
6	3
7	4
8	5

2.

x	y
0	1
0	2
2	4
4	6

Write a rule and an equation to describe the function.

3.

x	-3	-1	1	6
y	-21	-7	7	42

Patterns and Tables

Tell whether each relation is a function.

1.

a	3	5	7	12
b	-2	0	2	7

2.

x	3	3	4	5
y	-1	1	-1	1

3.

m	1	2	3	4
n	11	12	13	14

4.

x	12	9	6	3
y	3	0	-3	-6

Complete each table.

5. $r = 4 + m$

m	r
-2	
0	
2	
4	

6. $y = \frac{x}{2} + 1$

x	y
4	
6	
8	
10	

7. $b = 2a - 7$

a	b
12	
10	
8	
6	

Write a rule and an equation to describe the function.

8.

x	y
5	11
10	21
15	31
20	41

9.

a	b
14	2
10	-2
6	-6
2	-10

Test Prep

10. Which rule describes this table of values?

- A. $y = x - 8$ B. $y = 8 - x$
 C. $y = x - (-8)$ D. $x = y + 8$

x	y
0	8
5	13
10	18
15	23

11. **Writing in Math** Explain in your own words how you can tell if a relation is a function.
