

# LINEAR VS. NONLINEAR: TABLES



To determine if a table shows a linear or nonlinear function, start by finding the rate of change.

$$\text{Rate of change} = \frac{\text{change in } y}{\text{change in } x}$$

If a function has a constant rate of change, it is a **linear function**.

The table below shows a linear function since the rate of change is constant. When you calculate the rate of change for different rows, you always get the same answer, which is 2.

x	y
-2	4
0	8
1	10
5	18

$\frac{4}{2} = 2$   
 $\frac{2}{1} = 2$   
 $\frac{8}{4} = 2$

If a function does not have a constant rate of change, it is a **nonlinear function**.

The table below shows a nonlinear function since the rate of change is not constant. When you calculate the rate of change for different rows, you get different answers.

x	y
0	-1
1	0
3	8
6	35

$\frac{1}{1} = 1$   
 $\frac{8}{2} = 4$   
 $\frac{27}{3} = 9$

**Time to practice!** Determine whether each table shows a linear or nonlinear function. Circle the correct answer.

x	y
7	-4
8	-1
9	2
10	5

Linear

Nonlinear

x	y
16	14
17	10
18	8
19	7

Linear

Nonlinear

x	y
3	6
5	10
7	14
9	18

Linear

Nonlinear

# LINEAR VS. NONLINEAR: TABLES



**Keep going!** Determine whether each table shows a linear or nonlinear function. Circle the correct answer.

x	y
-5	6
-4	13
-3	18
-2	24

Linear      Nonlinear

x	y
12	4
14	8
16	10
18	14

Linear      Nonlinear

x	y
4	9
8	6
12	3
16	0

Linear      Nonlinear

x	y
-4	-6
-3	-3
-2	0
-1	3

Linear      Nonlinear

x	y
5	10
15	11
20	12
35	13

Linear      Nonlinear

x	y
0	14
3	17
5	19
12	26

Linear      Nonlinear

x	y
-3	-4
1	8
6	23
15	59

Linear      Nonlinear

x	y
5	1
9	7
15	16
23	28

Linear      Nonlinear

x	y
-10	7
-16	9
-28	13
-31	14

Linear      Nonlinear