

EXAMPLE 2 Classify and graph a real-world function

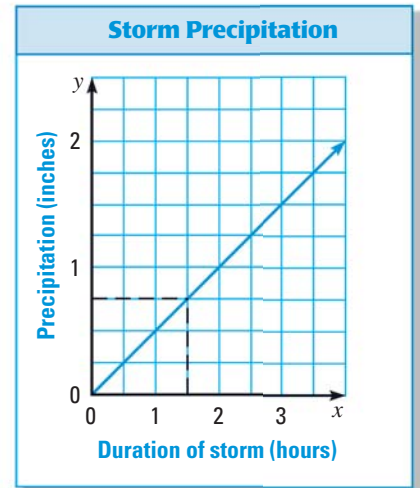
Tell whether the function represented by the table is discrete or continuous. Explain. If continuous, graph the function and find the value of y when $x = 1.5$.

Duration of storm (hours), x	1	2	3
Amount of rain (inches), y	0.5	1	1.5

Solution

Although the table shows the amount of rain that has fallen after whole numbers of hours only, it makes sense to talk about the amount of rain after any amount of time during the storm. So, the table represents a continuous function.

The graph of the function is shown. To find the value of y when $x = 1.5$, start at 1.5 on the x -axis, move up to the graph, and move over to the y -axis. The y -value is about 0.75. So, about 0.75 inch of rain has fallen after 1.5 hours.



PRACTICE

EXAMPLE 1

on p. 223
for Exs. 1–6

Graph the function with the given domain. Classify the function as discrete or continuous.

- $y = -2x + 3$; domain: $-2, -1, 0, 1, 2$
- $y = x$; domain: all real numbers
- $y = -\frac{1}{3}x + 1$; domain: $-12, -6, 0, 6, 12$
- $y = 0.5x$; domain: $-2, -1, 0, 1, 2$
- $y = 3x - 4$; domain: $x \leq 0$
- $y = \frac{2}{3}x + \frac{1}{3}$; domain: $x \geq -2$

EXAMPLE 2

on p. 224
for Exs. 7–9

Tell whether the function represented by the table is discrete or continuous. Explain. If continuous, graph the function and find the value of y when $x = 3.5$. Round your answer to the nearest hundredth.

7.

Number of DVD rentals, x	1	2	3	4
Cost of rentals (dollars), y	4.50	9.00	13.50	18.00

8.

Hours since 12 P.M., x	2	4	6	8
Distance driven (miles), y	100	200	300	400

9.

Volume of water (cubic inches), x	3	6	9	12
Approximate weight of water (pounds), y	0.1	0.2	0.3	0.4