

Graph Point Stories

Read proportional points in context.

GRADE 7 • 7.RP.A.2d

CCSS.Math.Content.7.RP.A.2d "Explain what a point (x , y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate."

NAME _____

DATE _____

WHAT A POINT SAYS

In a proportional relationship, (x , y) means x units of one quantity match y units of the other. The point (0, 0) means zero matches zero. The point (1, r) shows the unit rate r .

WORKED EXAMPLE

A printer makes $y = 11x$ flyers, where x is minutes. Explain (3, 33).

1. $x = 3$ minutes.
2. $y = 11 \times 3 = 33$ flyers.
3. The point matches 3 minutes with 33 flyers.

Answer: (3, 33) means the printer makes 33 flyers in 3 minutes.

PRACTICE 5 problems

- 1** A proportional graph has unit rate 4. Explain (0, 0) and (1, 4).

ANSWER _____

- 2** For $y = \frac{3}{4}x$, explain (8, 6).

ANSWER _____

- 3** Each movie ticket costs \$7. x is tickets and y is cost. What does (5, 35) mean?

ANSWER _____

- 4** A reader finishes y pages in x minutes at a constant rate. The graph includes (1, 12). What is the rate, and what does the point mean?

ANSWER _____

- 5** For $y = 2x$, does (9, 18) belong on the graph? Explain.

ANSWER _____

APPLY IT Show your work

- 1** At a robotics fundraiser, x is keychains sold and y is dollars collected. Each keychain costs \$8. Explain $(0, 0)$ and $(1, 8)$.

WORK SPACE

ANSWER _____

- 2** An art club sells stickers for \$4 each. x is stickers and y is dollars. Explain $(7, 28)$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A bike rental graph uses x half-hours and y dollars. It includes $(0, 0)$, $(1, 5/2)$, and $(8, 20)$. Explain why $(4, 10)$ belongs on the graph and what it means.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A proportional graph has unit rate 4. Explain $(0, 0)$ and $(1, 4)$.	$(0, 0)$ means 0 units match 0 units. $(1, 4)$ means 1 unit matches 4 units, so the unit rate is 4.
2	For $y = 3/4x$, explain $(8, 6)$.	$(8, 6)$ means 8 x-units match 6 y-units.
3	Each movie ticket costs \$7. x is tickets and y is cost. What does $(5, 35)$ mean?	$(5, 35)$ means 5 tickets cost \$35.
4	A reader finishes y pages in x minutes at a constant rate. The graph includes $(1, 12)$. What is the rate, and what does the point mean?	The rate is 12 pages per minute. $(1, 12)$ means 12 pages in 1 minute.
5	For $y = 2x$, does $(9, 18)$ belong on the graph? Explain.	Yes. Since $2 \times 9 = 18$, $(9, 18)$ means 9 x-units match 18 y-units.

PART 2 • APPLY IT

- $(0, 0)$ means selling no keychains collects \$0. $(1, 8)$ means one keychain collects \$8.** Use $y = 8x$. The origin represents zero sales, and the point with $x = 1$ gives the price of one keychain.
- $(7, 28)$ means 7 stickers cost \$28.** Use $y = 4x$. The x -coordinate is the number of stickers, and the y -coordinate is the total cost.

CHALLENGE

The unit rate is \$5/2 per half-hour. Since $4 \times 5/2 = 10$, $(4, 10)$ belongs. It means 4 half-hours of rental cost \$10.

Accept equivalent wording that correctly names both quantities and units. Accept \$2.50 in place of \$5/2.