LESSON MAKER PRO

Slope Stories

Find and interpret unit rates.

GRADE 7 · 7A.PR.B.5.a

7A.PR.B.5.a "Interpret the unit rate of a proportional relationship, describing the constant of proportionality as the slope of the graph which goes through the origin and has the equation y = mx where m is the slope."

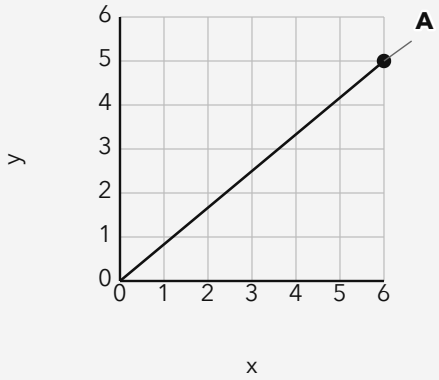
NAME _____ DATE _____

THE BIG IDEA

A proportional graph goes through (0, 0). To find its slope m, divide y by x at another point. The slope is the amount y changes when x increases by 1, and the equation is y = mx.

WORKED EXAMPLE

Use the graph to find the slope and write its equation.



1. Point A has x = 6 and y = 5.
2. m = y/x = 5/6.
3. Put m into y = mx.

Answer: The slope is 5/6, and the equation is y = (5/6)x.

PRACTICE 4 problems

1 A proportional relationship includes (2, 8). Find its slope and write its equation.

ANSWER _____

2 For y = (3/7)x, how much does y increase when x increases by 1?

ANSWER _____

3 A proportional relationship includes (7, 14). Find its slope.

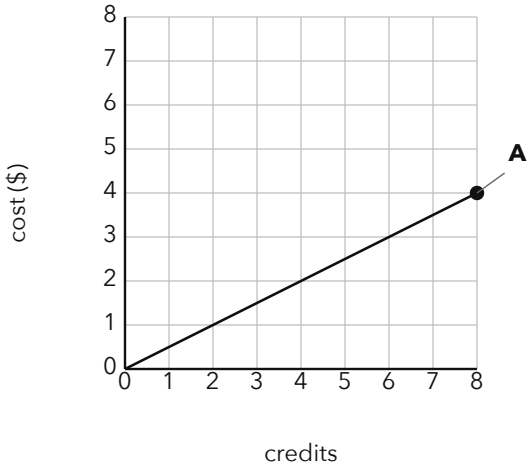
ANSWER _____

4 For y = 9x, what point has x = 2?

ANSWER _____

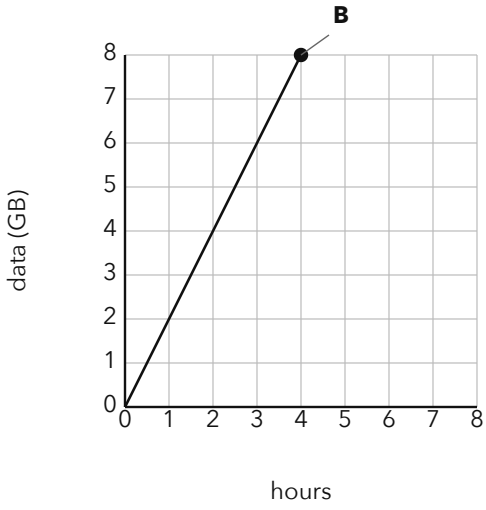
APPLY IT Show your work

1 Use the game-credit graph. Find the cost per credit and write an equation for cost y from credits x.



ANSWER _____

2 Use the streaming graph. Find the data used per hour and predict the data used in 3 hours.



ANSWER _____

CHALLENGE One step up

Plan A follows y = (7/4)x. Plan B follows y = (13/7)x. Which graph is steeper? Explain without decimals.

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A proportional relationship includes (2, 8). Find its slope and write its equation.	**m = 4; y = 4x**
2	For y = (3/7)x, how much does y increase when x increases by 1?	**3/7**
3	A proportional relationship includes (7, 14). Find its slope.	**2**
4	For y = 9x, what point has x = 2?	**(2, 18)**

PART 2 · APPLY IT

1. **$0.50 per credit; y = (1/2)x** Divide $4 by 8 credits to get $0.50 per credit. Use that rate as the slope.
2. **2 GB per hour; 6 GB in 3 hours** Divide 8 GB by 4 hours to get 2 GB per hour. Multiply by 3 hours to get 6 GB.

CHALLENGE

Plan B. Its slope is 13/7 = 52/28, which is greater than Plan A's slope of 7/4 = 49/28.

Accept equivalent fractions, decimals, and equations. In the challenge, accept any exact comparison that shows Plan B has the greater slope.