LESSON MAKER PRO

Slope Tells the Rate

Read proportional graphs and write equations.

GRADE 8 · 8.AF.B.8.a

8.AF.B.8.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."

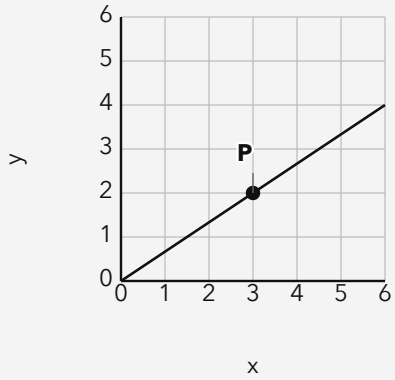
NAME _____ DATE _____

THE BIG IDEA

On a proportional graph, the line passes through the origin. To find its slope, divide the change in y by the change in x. That slope is the unit rate m in y = mx.

WORKED EXAMPLE

Use the graph to find the unit rate and write an equation.



1. From the origin to P, x increases by 3.
2. Over the same move, y increases by 2.
3. Divide: m = 2/3.

Answer: Unit rate: 2/3. Equation: y = (2/3)x.

PRACTICE 4 problems

1 A proportional graph contains (6, 42). Find its slope and write its equation.

ANSWER _____

2 For y = 9x, x is hours and y is videos watched. State the slope and what it means.

ANSWER _____

3 A proportional graph contains (5, 40). Find its unit rate and write its equation.

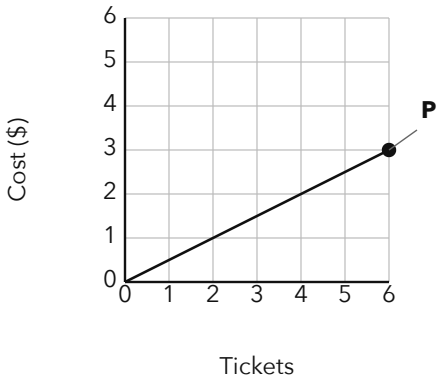
ANSWER _____

4 A proportional graph contains (10, 25). Find its slope.

ANSWER _____

APPLY IT Show your work

1 At a school fair, the graph shows cost y in dollars for x game tickets. Find the cost per ticket and write an equation.



ANSWER _____

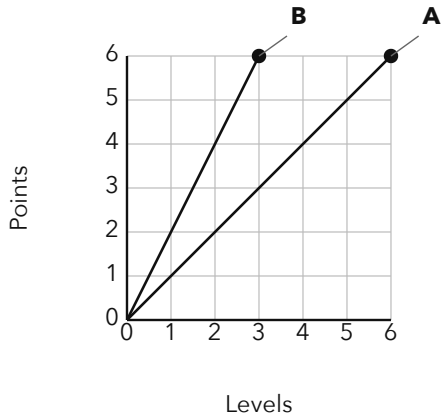
2 A club sells 8 sticker packs for $12. At a constant price, let x be packs and y be dollars. Find the price per pack and write an equation.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Each line shows points y earned after x levels in a game. Find each line's points per level. Which line has the greater rate, and by how much?



WORK SPACE AND ANSWER

ANSWER KEY

Slope Tells the Rate

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A proportional graph contains (6, 42). Find its slope and write its equation.	**m = 7; y = 7x**
2	For y = 9x, x is hours and y is videos watched. State the slope and what it means.	**The slope is 9. The rate is 9 videos per hour.**
3	A proportional graph contains (5, 40). Find its unit rate and write its equation.	**Unit rate: 8; y = 8x**
4	A proportional graph contains (10, 25). Find its slope.	**5/2**

PART 2 · APPLY IT

1. **$1/2 per ticket; y = (1/2)x** Divide $3 by 6 tickets to get $1/2 per ticket. Use that rate as m.
2. **$3/2 per pack; y = (3/2)x** Divide $12 by 8 packs to get $3/2 per pack. Use that price as m.

CHALLENGE

A: 1 point per level. B: 2 points per level. B's rate is greater by 1 point per level.

Accept equivalent fractions or decimals for rates. Equations must use the stated x and y quantities.