LESSON MAKER PRO

Rate Race

Compare proportional relationships in graphs, tables, and equations.

GRADE 8 · MT.8.EE.5

MT.8.EE.5 "Graph proportional relationships, interpret the unit rate as the slope of the graph, and compare two different proportional relationships as tables, graphs, and equations."

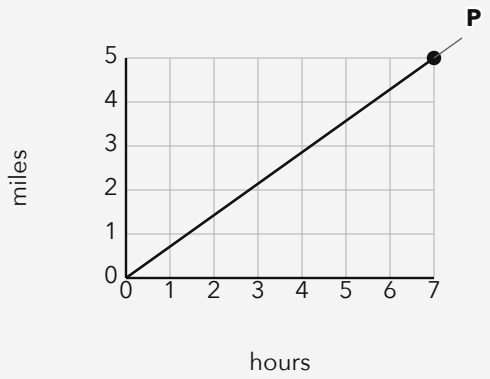
NAME _____ DATE _____

SLOPE IS THE RATE

A proportional relationship graphs as a line through (0,0). Its slope is the unit rate: divide the change in y by the change in x. Compare relationships by finding each unit rate.

WORKED EXAMPLE

What is the unit rate shown by the graph?



1. From (0,0) to P, y increases by 5.
2. Over the same interval, x increases by 7.
3. Slope = 5/7.

Answer: 5/7 mile per hour

PRACTICE 4 problems

1 Find the unit rate for y = 6x.

ANSWER _____

2 Which has the greater unit rate, y = 8x or y = 6x? How much greater?

ANSWER _____

3 A proportional relationship includes (2,9). Find its unit rate.

ANSWER _____

4 Write an equation for a proportional relationship with unit rate 1/4.

ANSWER _____

APPLY IT Show your work

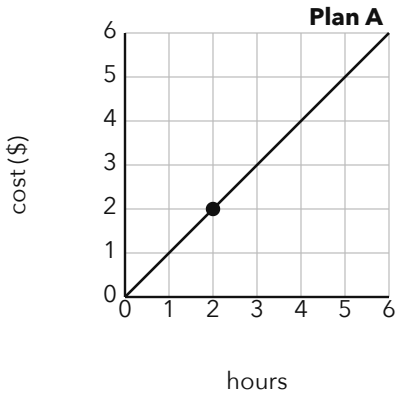
1 App A awards gaming points as shown. App B awards y = 6x points in x minutes. Which app awards points faster, and by how many points per minute?

APP A

Minutes	Points
0	0
1	8
2	16

ANSWER _____

2 The graph shows the cost of bike rental Plan A. Plan B costs y = 2x dollars for x hours. Which plan costs less for 2 hours, and by how much?



ANSWER _____

CHALLENGE One step up

Relationship A is y = 9x. Relationship B includes (6,48). At x = 12, which has the greater y-value, and by how much? Explain using unit rates.

WORK SPACE AND ANSWER

ANSWER KEY

Rate Race

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the unit rate for y = 6x.	**6**
2	Which has the greater unit rate, y = 8x or y = 6x? How much greater?	**y = 8x; greater by 2**
3	A proportional relationship includes (2,9). Find its unit rate.	**9/2**
4	Write an equation for a proportional relationship with unit rate 1/4.	**y = 1/4x**

PART 2 · APPLY IT

1. **App A, by 2 points per minute** The table shows 8 points per minute for App A. App B gives 6, so the difference is 2.
2. **Plan A, by $2** At 2 hours, the graph shows $2 for Plan A. Plan B costs 2 × 2 = $4, so Plan A costs $2 less.

CHALLENGE

A is greater by 12. Its unit rate is 9, while B's is 48/6 = 8. At x = 12, their y-values are 108 and 96.

Accept equivalent fractions and equations. For comparisons, require both the correct relationship and the difference.