LESSON MAKER PRO

Rates in Action

Use unit rates to solve and compare.

GRADE 7 · 7.A.2

7.A.2 "Identify and justify proportional relationships using mathematical models and situations; solve problems involving proportional relationships and interpret results in the original context. Represent proportional relationships with tables..."

NAME _____ DATE _____

FIND THE COMMON RATE

In a proportional relationship, output / input is the same for every nonzero input. This common value is the unit rate. Multiply an input by the unit rate to find its output.

WORKED EXAMPLE

Does the table show a proportional relationship? Find the unit rate.

PHOTOS TAKEN

Minutes	Photos
4	36
8	72

1. 36 / 4 = 9 photos per minute.
2. 72 / 8 = 9 photos per minute.
3. The rates match, so the relationship is proportional.

Answer: Yes; 9 photos per minute.

PRACTICE 4 problems

1 Three keychains cost $15. At the same price per keychain, how much do 11 cost?

ANSWER _____

2 A bike travels 28 miles in 2 hours at a steady speed. How far does it travel in 5 hours?

ANSWER _____

3 A recipe uses 10 cups of water for 25 servings. How many cups are needed for 15 servings?

ANSWER _____

4 One tank fills 12 liters in 5 minutes. Does a second tank that fills 30 liters in 10 minutes have the same rate? Show how you know.

ANSWER _____

APPLY IT Show your work

1 At an arcade, the table shows token costs. At this rate, how much do 25 tokens cost?

ARCADE TOKENS

Tokens	Cost
10	$20
20	$40

ANSWER _____

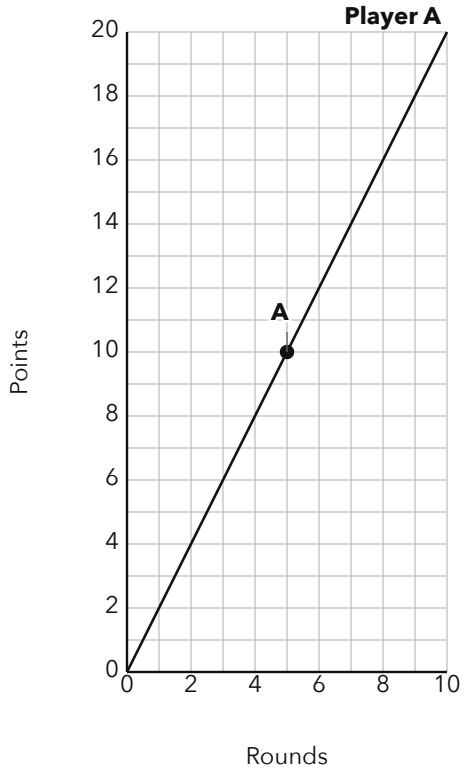
2 A concert hoodie costs $50. A sale takes 20% off, then tax is 10% of the sale price. What is the final cost?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The graph shows Player A's points per round. Player B earns 15 points in 5 rounds. Who earns more points per round, and by how much? Explain.



WORK SPACE AND ANSWER

ANSWER KEY

Rates in Action

GRADE 7 · 7.A.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Three keychains cost $15. At the same price per keychain, how much do 11 cost?	**$55**
2	A bike travels 28 miles in 2 hours at a steady speed. How far does it travel in 5 hours?	**70 miles**
3	A recipe uses 10 cups of water for 25 servings. How many cups are needed for 15 servings?	**6 cups**
4	One tank fills 12 liters in 5 minutes. Does a second tank that fills 30 liters in 10 minutes have the same rate? Show how you know.	**No. The rates are 12 / 5 = 2.4 liters per minute and 30 / 10 = 3 liters per minute.**

PART 2 · APPLY IT

1. **$50** Each token costs $2. Multiply 25 by $2.
2. **$44** The sale price is $40. Tax is $4, making the final cost $44.

CHALLENGE

Player B earns 1 more point per round. Player A earns 10 / 5 = 2 points per round, while Player B earns 15 / 5 = 3.

Accept equivalent calculations that show the correct unit rates. For the challenge, students may use any nonzero point on Player A's line.