LESSON MAKER PRO

Rate Relationship Lab

Use unit rates to connect tables, rules, and real situations.

GRADE 6 · TEKS 6.1.F

6.1.F "analyze mathematical relationships to connect and communicate mathematical ideas; and"

NAME _____ DATE _____

CONNECT THE RATE

In a proportional relationship, each pair has the same unit rate. Find the amount for 1 unit, then multiply by a new number of units. A proportional rule can be written as total = kx, where k is the constant rate.

WORKED EXAMPLE

A concert sells 4 snack vouchers for $28. At the same price per voucher, what is the cost of 9 vouchers?

1. Find the price of 1 voucher: 28 / 4 = 7.
2. Multiply by the new number of vouchers: 9 × 7 = 63.

Answer: $63

PRACTICE 6 problems

1 Use the table. Find the price for 1 jersey and the cost for 10 jerseys.

JERSEY COST

Jerseys	Cost
5	$40
10	?

ANSWER _____

2 A runner completes 14 laps in 21 minutes at a constant pace. What is the unit rate in laps per minute?

ANSWER _____

3 A museum's group ticket cost follows the rule total = 11x, where x is the number of tickets. Find the total cost when x = 13.

ANSWER _____

4 Relationship A has total = 12x. Relationship B has total = 12x + 1. Which relationship is proportional? Explain in a phrase.

ANSWER _____

5 At a constant reading pace, a student reads 30 pages in 12 minutes. How many pages will the student read in 17 minutes?

ANSWER _____

6 Plan A earns 22 points in 11 rounds. Plan B earns 39 points in 13 rounds. Which plan earns more points per round? Show the unit rates.

ANSWER _____

APPLY IT Show your work

1 A game app gives 36 coins for completing 12 daily quests. If the rate stays the same, how many coins will a player earn for 19 daily quests?

WORK SPACE

ANSWER _____

2 A student is choosing sticker packs. Shop A sells 25 stickers for $30. Shop B sells 33 stickers for $33. Which shop costs less per sticker, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A rewards app records this relationship: when x = 12, a player earns 30 points; when x = 20, the player earns 50 points; and when x = 26, the player earns 65 points. Is the number of points proportional to x? Explain how you know, write a rule for the points, and predict the points when x = 38.

WORK SPACE AND ANSWER

ANSWER KEY

Rate Relationship Lab

GRADE 6 · TEKS 6.1.F

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the table. Find the price for 1 jersey and the cost for 10 jerseys.	**$8 per jersey; $80**
2	A runner completes 14 laps in 21 minutes at a constant pace. What is the unit rate in laps per minute?	**2/3 lap per minute**
3	A museum's group ticket cost follows the rule total = 11x, where x is the number of tickets. Find the total cost when x = 13.	**$143**
4	Relationship A has total = 12x. Relationship B has total = 12x + 1. Which relationship is proportional? Explain in a phrase.	**Relationship A; it starts at 0 and has a constant rate of 12.**
5	At a constant reading pace, a student reads 30 pages in 12 minutes. How many pages will the student read in 17 minutes?	**42 1/2 pages**
6	Plan A earns 22 points in 11 rounds. Plan B earns 39 points in 13 rounds. Which plan earns more points per round? Show the unit rates.	**Plan B; Plan A = 2 points per round and Plan B = 3 points per round.**

PART 2 · APPLY IT

1. **57 coins** Find the unit rate: 36 / 12 = 3 coins per quest. Multiply 3 × 19 = 57.
2. **Shop B; it costs 1/5 dollar, or 20 cents, less per sticker.** Shop A costs 30 / 25 = 6/5 dollars per sticker. Shop B costs 33 / 33 = 1 dollar per sticker, so the difference is 1/5 dollar.

CHALLENGE

Yes. Each number of points is 5/2 times x, so the rule is points = (5/2)x. When x = 38, the player earns 95 points.

Accept equivalent unit rates and equivalent fractional or decimal forms. For Problem 5, accept 42.5 or 85/2 pages; for the challenge, accept an explanation that all point-to-x ratios equal 5/2.