

Rate Detective

Find the rule that connects two quantities.

GRADE 6 • TEKS 6.1.F

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

NAME _____

DATE _____

SPOT THE CONSTANT RATE

Two quantities are proportional when one quantity is always multiplied by the same rate to get the other. Divide y by x to find the constant rate, then multiply by that rate to find a missing value. You can also write the relationship as $y = kx$, where k is the constant rate.

WORKED EXAMPLE

A music app charges \$18 for 6 months. At the same rate, how much will 10 months cost?

1. Find the cost for 1 month: $\$18 / 6 = \3 .
2. Multiply by 10 months: $\$3 \times 10 = \30 .

Answer: \$30

PRACTICE 6 problems

- 1** The table is proportional. Complete it: x : 2, 8; y : 9, ____.

ANSWER _____

- 2** Five stickers cost \$20. At the same price per sticker, how much do 12 stickers cost?

ANSWER _____

- 3** A scooter travels 7 miles in 14 minutes at a constant speed. How many minutes does it take to travel 11 miles?

ANSWER _____

- 4** Which table shows a proportional relationship? Table A: x : 4, 5, 7; y : 16, 20, 28
Table B: x : 4, 5, 7; y : 16, 21, 28

ANSWER _____

- 5** The relationship is $y = 11x$. Find y when $x = 5$.

ANSWER _____

- 6** The relationship is $y = 4x$. Find x when $y = 52$.

ANSWER _____

APPLY IT Show your work

- 1** A game club earns 45 points for completing 9 quests. If the club earns points at the same rate, how many points will it earn for 16 quests?

WORK SPACE

ANSWER _____

- 2** Seven concert tickets cost \$56. If each ticket costs the same amount, how much will 9 tickets cost?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Team A earns 88 coins in 11 rounds. Team B earns 91 coins in 13 rounds. If both teams play 15 rounds at the same rates, which team earns more coins? Explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	The table is proportional. Complete it: x: 2, 8; y: 9, ____.	36
2	Five stickers cost \$20. At the same price per sticker, how much do 12 stickers cost?	\$48
3	A scooter travels 7 miles in 14 minutes at a constant speed. How many minutes does it take to travel 11 miles?	22 minutes
4	Which table shows a proportional relationship? Table A: x: 4, 5, 7; y: 16, 20, 28 Table B: x: 4, 5, 7; y: 16, 21, 28	Table A
5	The relationship is $y = 11x$. Find y when $x = 5$.	55
6	The relationship is $y = 4x$. Find x when $y = 52$.	13

PART 2 • APPLY IT

1. **80 points** Divide 45 by 9 to find 5 points per quest. Multiply 5 by 16 to get 80 points.
2. **\$72** Divide \$56 by 7 to find that each ticket costs \$8. Multiply \$8 by 9 to get \$72.

CHALLENGE

Team A earns more coins. Team A earns 8 coins per round, so it earns 120 coins in 15 rounds. Team B earns 7 coins per round, so it earns 105 coins in 15 rounds.

Accept equivalent rate-based work and correctly labeled units. For the challenge, accept any clear explanation that compares the unit rates or the totals after 15 rounds.