

# Rate Reasoning Lab

*Find unit rates, then scale them to solve problems.*

**GRADE 6 • NY-6.RP.3**

**NY-6.RP.3** "Use ratio and rate reasoning to solve real-world and mathematical problems."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## BUILD FROM ONE UNIT

Find a unit rate by dividing to learn the amount for one unit. Then multiply the unit rate by the new number of units. Keep the units with your answer so you know what the rate means.

## WORKED EXAMPLE

Seven stickers cost \$28. What is the cost of 11 stickers at the same price per sticker?

1. Divide to find the cost of 1 sticker:  $\$28 / 7 = \$4$ .

2. Multiply by 11 stickers:  $11 \times \$4 = \$44$ .

**Answer: \$44**

## PRACTICE 6 problems

- 1** A cyclist rides 18 miles in 3 hours at a constant speed. What is the cyclist's speed in miles per hour?

**ANSWER** \_\_\_\_\_

- 2** A fruit punch recipe uses 2 cups of juice to make 5 servings. How many cups of juice are needed for 15 servings?

**ANSWER** \_\_\_\_\_

- 3** A pack of 8 markers costs \$24. At the same price per marker, how many markers can you buy for \$36?

**ANSWER** \_\_\_\_\_

- 4** A reader finishes 9 pages in 12 minutes at a constant rate. How many minutes will it take to finish 30 pages?

**ANSWER** \_\_\_\_\_

- 5** On a map, 1 inch represents 25 miles. Two cities are 6 inches apart on the map. What is the actual distance between the cities?

**ANSWER** \_\_\_\_\_

- 6** A player earns 14 points in 2 games at the same rate each game. How many points will the player earn in 5 games?

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** In a video game, a player earns 54 coins for completing 9 quests. The player earns coins at the same rate for each quest. How many coins will the player earn for completing 14 quests?

WORK SPACE

ANSWER \_\_\_\_\_

- 2** A school media team records 96 minutes of footage during 12 matches. If each match takes the same amount of recording time, how many minutes of footage will they record during 20 matches?

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

Plan A charges \$18 for 6 GB of data. Plan B charges \$24 for 12 GB of data. Each plan charges a constant rate per GB. Which plan costs less for 15 GB, and how much less does it cost? Show your reasoning.

WORK SPACE AND ANSWER

## PART 1 • PRACTICE

| # | PROBLEM                                                                                                                         | ANSWER                  |
|---|---------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 1 | A cyclist rides 18 miles in 3 hours at a constant speed. What is the cyclist's speed in miles per hour?                         | <b>6 miles per hour</b> |
| 2 | A fruit punch recipe uses 2 cups of juice to make 5 servings. How many cups of juice are needed for 15 servings?                | <b>6 cups</b>           |
| 3 | A pack of 8 markers costs \$24. At the same price per marker, how many markers can you buy for \$36?                            | <b>12 markers</b>       |
| 4 | A reader finishes 9 pages in 12 minutes at a constant rate. How many minutes will it take to finish 30 pages?                   | <b>40 minutes</b>       |
| 5 | On a map, 1 inch represents 25 miles. Two cities are 6 inches apart on the map. What is the actual distance between the cities? | <b>150 miles</b>        |
| 6 | A player earns 14 points in 2 games at the same rate each game. How many points will the player earn in 5 games?                | <b>35 points</b>        |

## PART 2 • APPLY IT

- 84 coins** Find the unit rate:  $54 / 9 = 6$  coins per quest. Then multiply:  $6 \times 14 = 84$  coins.
- 160 minutes** Find the recording time per match:  $96 / 12 = 8$  minutes. Then multiply:  $8 \times 20 = 160$  minutes.

## CHALLENGE

**Plan B costs less. Plan A costs \$3 per GB, so 15 GB costs \$45. Plan B costs \$2 per GB, so 15 GB costs \$30. Plan B costs \$15 less.**

Accept equivalent ratio or proportion methods when the units and final answers are correct. Require students to identify Plan B and the \$15 difference in the challenge.