

Rate Detectives

Use unit rates to predict and compare.

GRADE 6 • TEKS 6.4.B

6.4.B "apply qualitative and quantitative reasoning to solve prediction and comparison of real- world problems involving ratios and rates;"

NAME _____

DATE _____

FIND THE UNIT RATE

When two quantities have a constant rate, divide to find the amount for 1 unit. Then multiply the unit rate to make a prediction. To compare two situations, find each unit rate and compare the results.

WORKED EXAMPLE

13 bracelets cost \$39. At the same rate, how much do 7 bracelets cost?

1. Find the cost of 1 bracelet: $39 / 13 = 3$.
2. Multiply by the number of bracelets: $7 \times 3 = 21$.
3. Attach the money unit.

Answer: \$21

PRACTICE 6 problems

- 1** 8 pencils cost \$24. What is the cost of 1 pencil?

ANSWER _____

- 2** A cyclist travels 30 miles in 6 hours. What is the cyclist's unit rate?

ANSWER _____

- 3** Jordan reads 36 pages in 3 minutes. Priya reads 40 pages in 5 minutes. Who reads faster?

ANSWER _____

- 4** A faucet fills 18 liters in 2 minutes. How many liters will it fill in 11 minutes at the same rate?

ANSWER _____

- 5** A player earns 48 coins in 6 levels. How many coins will the player earn in 11 levels at the same rate?

ANSWER _____

- 6** Printer A prints 45 pages in 15 minutes. Printer B prints 54 pages in 9 minutes. Which printer is faster?

ANSWER _____

APPLY IT Show your work

- 1** An esports club earns 54 points in 6 rounds. If the club keeps the same scoring rate, how many points can it predict for 10 rounds?

WORK SPACE

ANSWER _____

- 2** Two student teams sort donated books. Team A sorts 72 books in 8 minutes, and Team B sorts 60 books in 10 minutes. Which team sorts faster, and by how many books per minute?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Robot A travels 48 meters using 3 battery units. Robot B travels 70 meters using 5 battery units. If each robot has 12 battery units, which robot will travel farther, and how much farther will it travel?

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	8 pencils cost \$24. What is the cost of 1 pencil?	\$3 per pencil
2	A cyclist travels 30 miles in 6 hours. What is the cyclist's unit rate?	5 miles per hour
3	Jordan reads 36 pages in 3 minutes. Priya reads 40 pages in 5 minutes. Who reads faster?	Jordan, 12 pages per minute compared with 8 pages per minute
4	A faucet fills 18 liters in 2 minutes. How many liters will it fill in 11 minutes at the same rate?	99 liters
5	A player earns 48 coins in 6 levels. How many coins will the player earn in 11 levels at the same rate?	88 coins
6	Printer A prints 45 pages in 15 minutes. Printer B prints 54 pages in 9 minutes. Which printer is faster?	Printer B, 6 pages per minute compared with 3 pages per minute

PART 2 • APPLY IT

1. **90 points** Divide 54 by 6 to find 9 points per round. Multiply 9 by 10.
2. **Team A, by 3 books per minute** Team A sorts 9 books per minute, and Team B sorts 6 books per minute. Compare the unit rates.

CHALLENGE

Robot A will travel farther. Robot A travels 192 meters, Robot B travels 168 meters, so Robot A travels 24 meters farther.

Accept equivalent unit-rate wording with correct units. For comparison problems, accept a correct choice only when the supporting rates or difference are also correct.