

Accelerated 6 • Unit 2 Worksheet

Ratios, Rates, and Percentages

Name: _____

Date: _____

Part A • Quick Computations

Mental math. Use any benchmarks you know.

20% of 80 _____	25% of 64 _____	150% of 40 _____	1% of 350 _____
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Part B • Reasoning with Ratios

1. A recipe uses 3 cups of flour for every 2 cups of sugar. Han makes a batch using 12 cups of flour. Diego makes a batch using 10 cups of sugar.

- How many cups of sugar does Han use? _____
- How many cups of flour does Diego use? _____
- Will their finished doughs taste the same? Explain.

2. Two paint mixtures: Mixture A uses 4 cups blue and 6 cups yellow. Mixture B uses 6 cups blue and 9 cups yellow. Will they be the same shade of green?

Answer: ☐ Same ☐ Different

Justify using equivalent ratios (no "they look the same"):

3. Complete the table of equivalent ratios. Then fill in the unit rate row.

miles	hours
	1
45	1

	3
180	
1	

Which row best answers "how far in 1 hour?" Which row best answers "how long for 1 mile?"
Explain why having BOTH unit rates is useful.

Part C • Rates and Percentages

4. Lin runs 5 km in 25 minutes. Sara runs 8 km in 36 minutes. Who runs faster? Defend your answer with TWO different methods.

Method 1. (unit rate: km per minute or min per km)

Method 2. (scaling to a common quantity)

5. A jacket originally costs \$80. It is on sale for 30% off. After the sale, a 7% tax is added to the sale price. What does the customer pay?

Show your work step-by-step:

Final price: \$_____

Mai says: "This is the same as $70\% \times 107\% \times \80 ." Is she right? Show why or why not.

6. 120 students were surveyed. 45% prefer math; 35% prefer science; the rest prefer reading.

a. How many prefer math? _____

b. How many prefer reading? _____

c. If 12 more reading-fans joined the school and the others stayed, what percentage now prefer reading?

Part D • Unit Conversion

7. 1 inch = 2.54 cm. A poster is 24 inches by 36 inches.

a. Find its dimensions in centimeters.

b. Find its AREA in square inches AND in square centimeters.

c. The conversion $1 \text{ in}^2 \rightarrow \text{ ______ } \text{ cm}^2$ is NOT 2.54. What is it, and why?

Part E • Thinking Deeply

8. Diego says: "A ratio of 6:9 is bigger than a ratio of 4:6 because $6 > 4$ and $9 > 6$." Is Diego right?

Answer: ☐ Yes ☐ No

Justify by writing both ratios in simplest form:

Why is comparing ratios different from comparing single numbers?

9. A shirt's price is increased by 20%, then decreased by 20%. Han claims: "The shirt is back to its original price." Show with a specific number (try \$100) whether Han is right. Generalize.

10. Write a real-world story problem that requires using BOTH a unit rate AND a percentage to solve. Then solve it.
