

Unit 2: Introducing Proportional Relationships

ADVANCED

Name: _____ Date: _____

Solve each problem and write your answer as a single exact value (number, fraction, or "yes"/"no"). Show that each relationship is proportional ($y = kx$) where needed.

1. A proportional relationship $y = kx$ contains the points (12, 30) and (20, 50). Find the value of y when $x = 34$.

Answer: _____

3. A proportional relationship $y = kx$ passes through the point (8, -20). Find the value of y when $x = -6$.

Answer: _____

5. A recipe uses flour and sugar in a proportional relationship: $\frac{3}{4}$ cup of flour for every $\frac{2}{3}$ cup of sugar. How many cups of flour are needed for 2 cups of sugar? Give your answer as a fraction.

Answer: _____

7. On a map, a distance of 2.5 cm represents 40 km. At the same scale, how many kilometers does a distance of 7 cm represent?

Answer: _____

9. The cost of rice is proportional to its weight. 3.6 kg of rice costs \$8.10. How many kilograms of rice can be bought for \$20.25?

Answer: _____

2. 7 identical notebooks cost \$18.20 in total. At the same unit rate, what is the total cost in dollars of 12 notebooks?

Answer: _____

4. A relationship contains the points (4, 10), (6, 15), and (9, 22.5). Is this relationship proportional? Answer yes or no.

Answer: _____

6. Machine A makes 240 parts in 6 hours and Machine B makes 315 parts in 7 hours, each at a constant rate. Working together, how many parts do they make in 4 hours?

Answer: _____

8. A proportional relationship $y = kx$ passes through (15, 6). Find the value of x when $y = 26$.

Answer: _____

10. A recipe that serves 8 people uses 600 mL of milk. Using the same proportional relationship, how many milliliters of milk are needed to serve 14 people?

Answer: _____

11. A table for a proportional relationship contains the points (2.5, 6) and (4, 9.6). Find the constant of proportionality k . Give your answer as a fraction.

Answer: _____

12. A certain paint covers area in a proportional relationship: 2.5 liters covers 30 square meters. How many liters are needed to cover 108 square meters?

Answer: _____