

Unit 2: Introducing Proportional Relationships

ADVANCED • SET 2

Name: _____ Date: _____

Solve each problem. Give exact answers using plain-text notation (fractions like $\frac{3}{4}$, coordinates like (3, 12), ratios like 2:3, or "yes"/"no"). Show no work needed—just the final answer.

1. A table shows a proportional relationship: when $x = 8$, $y = 20$; when $x = 14$, $y = 35$. Find the constant of proportionality k (as a fraction or decimal).

Answer: _____

2. The equation of a proportional relationship is $y = kx$. It passes through the point (12, 42). Find y when $x = 30$.

Answer: _____

3. A recipe uses $\frac{3}{4}$ cup of sugar for every $2\frac{1}{2}$ cups of flour. At this rate, how many cups of sugar are needed for 15 cups of flour?

Answer: _____

4. A car travels 175 miles on 6.25 gallons of gas. At this constant rate, how many gallons are needed to travel 448 miles?

Answer: _____

5. In a proportional relationship, the point $(\frac{2}{3}, 8)$ lies on the graph. Write the constant of proportionality k .

Answer: _____

6. Two quantities are proportional. When $x = 9$, $y = 6$. Which of these ordered pairs is also on the graph: (15, 10), (12, 9), or (21, 15)? Give the pair.

Answer: _____

7. A machine fills 340 bottles in 8 minutes at a constant rate. Write the equation relating bottles y to minutes x in the form $y = kx$ (state k as the value).

Answer: _____

8. The cost y (in dollars) is proportional to weight x (in pounds): 4.5 pounds cost \$30.60. Find the cost of 11 pounds.

Answer: _____

9. A proportional relationship has $k = \frac{7}{4}$. Find the value of x when $y = 63$.

Answer: _____

10. Points (6, y) and (10, 45) lie on the same proportional relationship. Find y .

Answer: _____

11. A worker earns money proportional to hours worked. In 3.5 hours she earns \$59.50. How much does she earn in a 40-hour week at the same rate?

Answer: _____

12. Two proportional relationships are given: A has equation $y = (5/6)x$ and B has equation $y = 0.8x$. For $x = 24$, find the positive difference between the y -values of A and B.

Answer: _____