

Unit 5: Proportional Relationships

ADVANCED

Name: _____ Date: _____

Show all work. Give exact answers; where a problem says "in terms of pi," leave pi in your answer.

1. In a proportional relationship, $y = 63$ when $x = 14$. Find the constant of proportionality k (as a decimal).

Answer: _____

2. 7 identical books cost \$45.50 total. At the same unit price, what is the cost in dollars of 12 books?

Answer: _____

3. A circle has diameter 35 cm. Find its circumference in terms of pi (in cm).

Answer: _____

4. A circle has radius 9 in. Find its area in terms of pi (in square inches).

Answer: _____

5. A circle has circumference 44π m. Find its radius in meters.

Answer: _____

6. A circle has area $169\pi \text{ cm}^2$. Find its diameter in cm.

Answer: _____

7. A car travels 340 miles on 8 gallons of gas. At the same rate, how many miles can it travel on 15 gallons?

Answer: _____

8. A recipe uses $\frac{3}{4}$ cup of flour for every 2 servings. How many cups of flour are needed for 9 servings? Give your answer as a fraction or decimal.

Answer: _____

9. A circle has radius 21 cm. Using $\pi = \frac{22}{7}$, find its circumference in cm.

Answer: _____

10. A circle has diameter 28 cm. Using $\pi = \frac{22}{7}$, find its area in cm^2 .

Answer: _____

11. 5 workers assemble 40 widgets in a day. At the same per-worker rate, how many widgets do 13 workers assemble in a day?

Answer: _____

12. A circle has circumference 30π cm. Find its area in terms of pi (in cm^2).

Answer: _____