

Unit 5: Proportional Relationships

ADVANCED · SET 2

Name: _____ Date: _____

Show your work and give each answer as an exact value. Use π where indicated; round decimals to the hundredths only when a problem says to.

1. A recipe uses flour and sugar in a constant ratio. When 14 cups of flour are used, 8 cups of sugar are needed. This relationship is proportional. How many cups of sugar are needed for 91 cups of flour?

Answer: _____

2. In a proportional relationship, $y = kx$. Given that $y = 63$ when $x = 28$, find the constant of proportionality k . Give your answer as a fraction in lowest terms.

Answer: _____

3. A car travels at a constant speed, covering 187 miles in 3.4 hours. Traveling at this same proportional rate, how many miles does it travel in 7.5 hours?

Answer: _____

4. Two quantities are proportional: when $x = 12$, $y = 30$. What is the value of y when $x = 46$? Give your answer as a decimal.

Answer: _____

5. A circle has a diameter of 26 cm. Find its exact circumference in terms of π (in cm).

Answer: _____

6. A circle has a radius of 4.5 m. Find its exact area in terms of π (in square meters).

Answer: _____

7. A circular running track has a circumference of 66π meters. What is its radius, in meters?

Answer: _____

8. A circle has an area of 144π square inches. What is its diameter, in inches?

Answer: _____

9. Using $\pi = 3.14$, find the area of a circle whose radius is 15 cm. Give your answer as a decimal in square centimeters.

Answer: _____

10. A circular garden has a radius of 21 m. Using $\pi = \frac{22}{7}$, find its circumference in meters.

Answer: _____

11. A large circle has a radius of 10 cm and a small circle has a radius of 6 cm. Find the ratio of the area of the large circle to the area of the small circle, expressed in lowest terms as a:b.

Answer: _____

12. A pizza with a diameter of 16 inches is cut into 8 equal slices. Using $\pi = 3.14$, what is the area of one slice, in square inches? Round to the nearest hundredth.

Answer: _____