

Chapter 6 | Circles I: Radius, Diameter, Circumference, and Pi

Worksheet C | Mixed Practice & Application

Name: _____ Grade: _____ Date: _____

Warm-up: Worked Examples

Example 1: Foundational

Problem: A circle has a radius of 12 cm. Find the diameter.

Double the radius

$$2 \times 12 = 24$$

Answer

24 cm

Example 2: Typical

Problem: A circular lid has a diameter of 0.9 m. Find its circumference. Use $\pi \approx 3.14$.

$$C = \pi d$$

$$3.14 \times 0.9 = 2.826$$

Answer

$$\approx 2.83 \text{ m}$$

Example 3: Common-Trap

Problem: A circle has a diameter of 14 cm. A student doubles 14 before using $C = \pi d$ and gets 87.92 cm. Explain the error and find the correct circumference.

Wrong (doubles a diameter)

$$3.14 \times 28 = 87.92$$

Correct (use given diameter)

$$3.14 \times 14 = 43.96$$

Example 4: Circumference From a Radius

Problem: A circular fountain has a radius of 7.5 m. Find the distance around it. Use $\pi \approx 3.14$.

$$C = 2\pi r$$

$$2 \times 3.14 \times 7.5 = 47.1$$

Answer

47.1 m

Example 5: Working Backward From Circumference

Problem: A circular track marker has circumference 125.6 cm. Estimate its diameter and radius. Use $\pi \approx 3.14$.

Divide by π

$$125.6 \div 3.14 = 40$$

Halve for radius

$$40 \div 2 = 20$$

Practice

1. A circle has radius 18 cm. Find its diameter and circumference.

2. A circle has diameter 25 m. Find its radius and circumference.

3. A round table has diameter 1.6 m. A ribbon will go once around the edge. How much ribbon is needed?

4. A circular pool has circumference 75.36 m. Estimate the diameter and radius.

5. A circular dog run has radius 3.5 m. A fence will go around the outside. How much fencing is needed?

6. A jar lid has diameter 8.5 cm. Find the circumference to the nearest hundredth.

7. A circular flower bed has radius 6.5 m. A border goes around the outside. Find the border length.

8. A hula hoop has circumference 251.2 cm. Estimate its diameter.

9. A wheel has diameter 0.7 m. How far does it travel in 4 full turns?

10. A circular skating rink has radius 13.5 m. A worker paints a line around the outside edge. Find the length of the line.

11. Non-Routine: A round picnic table has a radius of 1.1 m. It has four legs and is 0.75 m high. A protective strip is placed around the edge of the tabletop. How many metres of protective strip are needed?

12. Non-Routine: A circular object has circumference 163.28 cm. Describe one possible real object that could have this circumference. Then state its diameter and radius. Explain how the measurements are connected.

13. A circular clock face has a radius of 17 cm. What is its diameter? What is its circumference?

14. A circular garden has a diameter of 22 m. A hose is placed once around the garden. How much hose is needed?

15. A student says that a circle with radius 10 cm has a circumference of 31.4 cm. Is the student correct? State the correct circumference.
