

Chapter 7 | Circles II: Area and Circular Composite Shapes

Worksheet A | Guided Practice

Name: _____ Grade: _____ Date: _____

Warm-up: Worked Examples

Example 1: Foundational

Problem: Find the area of a circle with radius 4 cm. Use $\pi \approx 3.14$.

Square the radius

$$4^2 = 16$$

Multiply by π

$$3.14 \times 16 = 50.24$$

Example 2: Typical

Problem: A circular rug has diameter 12 m. Find the area of the rug. Use $\pi \approx 3.14$.

Halve for radius

$$12 \div 2 = 6$$

Square, multiply by π

$$3.14 \times 36 = 113.04$$

Example 3: Common-Trap

Problem: A circle has diameter 10 cm. A student writes $A = 3.14 \times 10^2$. Explain the error. Then find the correct area.

Wrong (squares diameter)

$$3.14 \times 10^2 = 314$$

Correct (squares radius)

$$3.14 \times 5^2 = 78.5$$

Example 4: Semicircle Area

Problem: A semicircular window has diameter 10 m. Find the area of the window. Use $\pi \approx 3.14$.

Full circle

$$3.14 \times 5^2 = 78.5$$

Halve it

$$78.5 \div 2 = 39.25$$

Example 5: Composite Shape With a Circular Cutout

Problem: A square sign is 20 cm by 20 cm. A circular hole with radius 6 cm is cut out of the middle. Find the area remaining in the sign. Use $\pi \approx 3.14$.

Square minus circle

$$400 - 113.04$$

Answer

$$286.96 \text{ cm}^2$$

Example 6: Working Backward From Area

Problem: A circular tabletop has an area of approximately 113.04 cm^2 . Find its radius and diameter.
Use $\pi \approx 3.14$.

Divide by π

$$113.04 \div 3.14 = 36$$

Un-square, then double

$$r = 6, d = 12$$

Practice

1. Carpet covering a circular room. (circumference or area?)

2. Diameter 10 cm. Find the radius.

3. Rope going around a circular garden. (circumference or area?)

4. Diameter 16 m. Find the radius.

5. Paint covering a circular sign. (circumference or area?)

6. Radius 2 cm. Find the area.

7. Diameter 24 cm. Find the radius.

8. Edging around a circular mirror. (circumference or area?)

9. Diameter 7 m. Find the radius.

10. Radius 22 m. Find the area.

11. Diameter 46 cm. Find the radius, then the area.

12. Semicircle with radius 6.5 cm. Find the area.

13. Diameter 18.6 m. Find the radius, then the area.

14. Quarter circle with radius 4 m. Find the area.

15. A square board is 10 cm by 10 cm. A circular hole with radius 3 cm is cut out. Find the remaining area.
