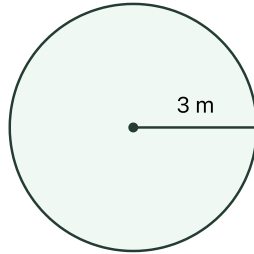


Area of a Circle Practice

Compare your reasoning, not just the final result. Equivalent correct methods are welcome.

Public practice with published answers. This is not a full-topic readiness assessment.

1. A circle has radius 3 m. Find its area in terms of π and using $\pi \approx 3.14$.



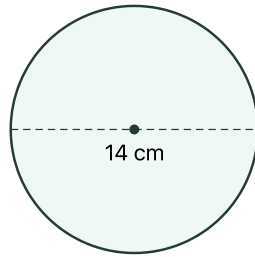
Drawing not to scale

Radius given

Worked solution 1: $9\pi \text{ m}^2$, approximately 28.26 m^2 .

1. Square the radius: $3^2 = 9$.
2. Multiply by π : $A = 9\pi \text{ m}^2$.
3. Approximation: $9 \times 3.14 = 28.26 \text{ m}^2$.

2. A circular plate has diameter 14 cm. Find its area, exactly and using $\pi \approx 3.14$.



Drawing not to scale

Plate diameter

Worked solution 2: $49\pi \text{ cm}^2$, approximately 153.86 cm^2 .

1. Radius = $14 \div 2 = 7 \text{ cm}$.
2. $A = \pi \times 7^2 = 49\pi \text{ cm}^2$.
3. $49 \times 3.14 = 153.86 \text{ cm}^2$.

3. A semicircular window has radius 5 cm. Find the area of the semicircle in terms of π and using 3.14.

Worked solution 3: $12.5\pi \text{ cm}^2$, approximately 39.25 cm^2 .

1. The complete circle has area $\pi \times 5^2 = 25\pi \text{ cm}^2$.
2. A semicircle has half that area: $25\pi \div 2 = 12.5\pi \text{ cm}^2$.
3. $12.5 \times 3.14 = 39.25 \text{ cm}^2$.

4. One circle has radius 2 cm and another has radius 6 cm. Find the ratio of their areas, larger to smaller, and explain why it is not 3:1.

Worked solution 4: The area ratio is 9:1.

1. Small area = $4\pi \text{ cm}^2$; large area = $36\pi \text{ cm}^2$.
2. $36\pi \div 4\pi = 9$.
3. The radius factor is 3, so the area factor is $3^2 = 9$.

5. A circular ring has outer radius 8 m and inner radius 5 m. Sketch concentric circles and find the ring area exactly and using 3.14.

Worked solution 5: $39\pi \text{ m}^2$, approximately 122.46 m^2 .

1. Outer disk: $\pi \times 8^2 = 64\pi \text{ m}^2$.
2. Inner disk: $\pi \times 5^2 = 25\pi \text{ m}^2$.
3. Subtract disk areas: $64\pi - 25\pi = 39\pi \text{ m}^2$, approximately 122.46 m^2 .
4. Squaring the radius difference would give the area of a different circle, not the ring.

6. A square of side 12 cm contains an inscribed circle touching all four sides. Sketch the figure and find the area inside the square but outside the circle, using $\pi \approx 3.14$.

Worked solution 6: 30.96 cm^2 .

1. Square area = $12 \times 12 = 144 \text{ cm}^2$.
2. The circle diameter is 12 cm, so its radius is 6 cm.
3. Circle area $\approx 3.14 \times 6^2 = 113.04 \text{ cm}^2$.
4. Outside area $\approx 144 - 113.04 = 30.96 \text{ cm}^2$.