

Develop Tasks — Answers



Calculate the area. Show all working.

1. Circle: radius 7 cm (use $\pi = 3.14$)

Solution

$$\begin{aligned}\text{Area} &= \pi r^2 = 3.14 \times 7^2 \\ &= 153.86 \text{ cm}^2\end{aligned}$$

2. Trapezium: parallel sides 6 cm and 14 cm, height 8 cm

Solution

$$\begin{aligned}\text{Area} &= \frac{1}{2}(6 + 14) \times 8 \\ &= \frac{1}{2} \times 20 \times 8 = 80 \text{ cm}^2\end{aligned}$$

3. Parallelogram: base 9 m, height 12 m

Solution

$$\begin{aligned}\text{Area} &= b \times h = 9 \times 12 \\ &= 108 \text{ m}^2\end{aligned}$$

4. Circle: diameter 16 cm (use $\pi = 3.14$)

Solution

$$\begin{aligned}r &= 8 \text{ cm: Area} = 3.14 \times 8^2 \\ &= 200.96 \text{ cm}^2\end{aligned}$$

5. Triangle: base 20 cm, height 13 cm

Solution

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 20 \times 13 \\ &= 130 \text{ cm}^2\end{aligned}$$

6. Composite: Rectangle $10 \text{ cm} \times 8 \text{ cm}$ with triangle on top (base 10 cm, height 6 cm)

Solution

$$\begin{aligned}&= (10)(8) + \frac{1}{2}(10)(6) \\ &= 80 + 30 = 110 \text{ cm}^2\end{aligned}$$

7. L-shape: tall part $4 \text{ m} \times 12 \text{ m}$, wide part $8 \text{ m} \times 3 \text{ m}$ (non-overlapping)

Solution

$$\begin{aligned}&= (4)(12) + (8)(3) \\ &= 48 + 24 = 72 \text{ m}^2\end{aligned}$$

8. Composite: Rectangle $15 \text{ cm} \times 6 \text{ cm}$ with circular hole, radius 2 cm (use $\pi = 3.14$)

Solution

$$\begin{aligned}&= (15)(6) - 3.14(2^2) \\ &= 90 - 12.56 = 77.44 \text{ cm}^2\end{aligned}$$

9. Sector: find area of rectangle $12 \text{ m} \times 7 \text{ m}$ minus triangle with base 12 m and height 3 m

Solution

$$\begin{aligned}&= (12)(7) - \frac{1}{2}(12)(3) \\ &= 84 - 18 = 66 \text{ m}^2\end{aligned}$$

Develop Tasks — Answers



Solve each area problem. Express answers with correct units.

1. Circle: radius 9 m (leave answer in terms of π)

Solution

$$\begin{aligned}\text{Area} &= \pi r^2 = \pi \times 9^2 \\ &= 81\pi \text{ m}^2\end{aligned}$$

2. Composite shape: rectangle 20 cm $\times$ 10 cm with semicircle on one side (diameter 20 cm, use $\pi = 3.14$)

Solution

$$\begin{aligned}&= (20)(10) + \frac{1}{2}(3.14)(10^2) \\ &= 200 + 157 = 357 \text{ cm}^2\end{aligned}$$

3. Trapezium: parallel sides 11 m and 19 m, height 6 m

Solution

$$\begin{aligned}\text{Area} &= \frac{1}{2}(11 + 19) \times 6 \\ &= \frac{1}{2} \times 30 \times 6 = 90 \text{ m}^2\end{aligned}$$

4. Right triangle: base 16 cm, height 9 cm

Solution

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 16 \times 9 \\ &= 72 \text{ cm}^2\end{aligned}$$

5. Composite: Two rectangles joined: 8 m $\times$ 5 m and 4 m $\times$ 7 m

Solution

$$\begin{aligned}&= (8)(5) + (4)(7) \\ &= 40 + 28 = 68 \text{ m}^2\end{aligned}$$

6. Circle: diameter 14 cm (leave answer in terms of π)

Solution

$$\begin{aligned}r &= 7 \text{ cm: Area} = \pi \times 7^2 \\ &= 49\pi \text{ cm}^2\end{aligned}$$

7. Composite L-shape: vertical part 3 cm $\times$ 15 cm, horizontal extension 10 cm $\times$ 4 cm (find total area)

Solution

$$\begin{aligned}&= (3)(15) + (10)(4) \\ &= 45 + 40 = 85 \text{ cm}^2\end{aligned}$$

8. Parallelogram: base 18 m, perpendicular height 11 m

Solution

$$\begin{aligned}\text{Area} &= b \times h = 18 \times 11 \\ &= 198 \text{ m}^2\end{aligned}$$

9. Rectangle with rectangular hole: outer 20 cm $\times$ 12 cm, hole 8 cm $\times$ 5 cm

Solution

$$\begin{aligned}&= (20)(12) - (8)(5) \\ &= 240 - 40 = 200 \text{ cm}^2\end{aligned}$$