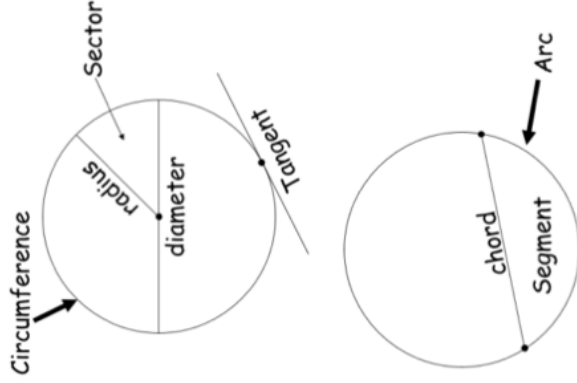


Year 8 Knowledge Organiser

CIRCLES AND COMPOUND AREA

Key Concepts



Key Words

Diameter: Distance from one side of the circle to the other, going through the centre.

Radius: Distance from the centre of a circle to the circumference.

Chord: A line that intersects the circle at two points.

Tangent: A line that touches the circle at only one point.

Compound (shape): More than one shape joined to make a different shape.

Tip

If you don't have a calculator you can leave your answer in terms of π .

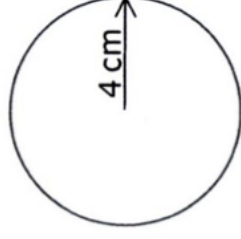
Formula

$$\text{Circle Area} = \pi \times r^2$$

$$\text{Circumference} = \pi \times d$$

Examples

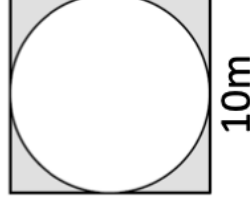
Find the area and circumference to 2dp.



$$\begin{aligned}\text{Circumference} &= \pi \times d \\ &= \pi \times 8 = 25.13\text{cm}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \pi \times r^2 \\ &= \pi \times 4^2 = 50.27\text{cm}^2\end{aligned}$$

Find shaded area to 2dp.



$$\begin{aligned}\text{Square area} &= 10 \times 10 \\ &= 100\text{m}^2\end{aligned}$$

$$\begin{aligned}\text{Circle area} &= \pi \times r^2 \\ &= \pi \times 5^2 \\ &= 78.54\text{ m}^2\end{aligned}$$

$$\text{Shaded area} = 100 - 78.54 = 21.46\text{m}^2$$

Questions

- Find to 1dp the area and circumference of a circle with:
 - Radius = 5cm
 - Diameter = 12mm
 - Radius = 9m
- Find the area & perimeter of a semi-circle with diameter of 15cm.

ANSWERS: 1) a) $A = 78.5\text{cm}^2$, $C = 31.4\text{cm}$ b) $A = 113.1\text{mm}^2$, $C = 37.7\text{mm}$
 c) $A = 254.5\text{m}^2$, $C = 56.5\text{m}$ 2) $A = 88.4\text{cm}^2$, $P = 38.6\text{cm}$