



Year 8 Summer 1 Unit 2—Circumference and Area of a Circle



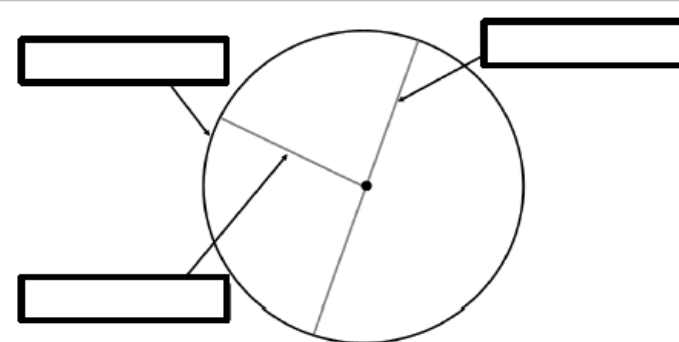
What you will learn

- Pi (π) = Circumference / Diameter
- Calculate the circumference and area of a circle
- Calculate arc length, perimeter, or area of a sector of a circle.
- Solve problems involving the above with circles.

Concept corner

Fill in the gaps:

- Circumference
- Radius
- Diameter



What are a **chord**, a **sector** and a **segment**?

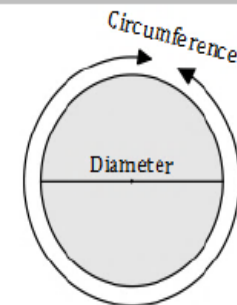
Round π to:

- | | |
|-----------------------------|--------------------------|
| a) The nearest whole number | e) 1 significant figure |
| b) 1 decimal place | f) 2 significant figures |
| c) 2 decimal places | g) 3 significant figures |
| d) 3 decimal places | |

Concept corner

The Greek letter π represents the ratio of a circle's circumference to its diameter.

$$\pi = \frac{\text{Circumference}}{\text{diameter}}$$



Press the π button on your calculator and write down the digits displayed.

.....

Match the radius, diameter and circumference card that represent the same circle.

Radius = 5 cm	Diameter = 20 cm	Circumference = 40π cm
Radius = 10 cm	Diameter = 40 cm	Circumference = 20π cm
Radius = 2.5 cm	Diameter = 10 cm	Circumference = 15π cm
Radius = 20 cm	Diameter = 15 cm	Circumference = 10π cm
Radius = 7.5 cm	Diameter = 5 cm	Circumference = 5π cm

Concept corner

The circumference of a circle can be found using the formulae:

$$C = \pi \times d \quad \text{or} \quad C = 2 \times \pi \times r$$



Concept corner

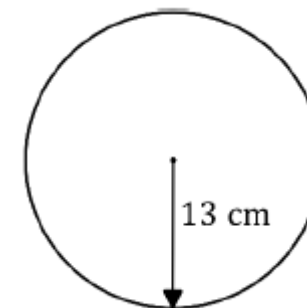
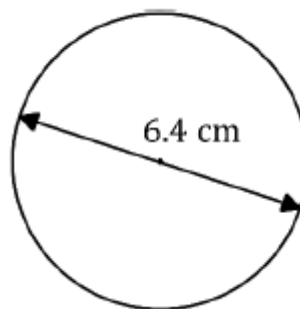
The area of a circle can be found using the formula:

$$A = \pi \times r \times r \text{ or } A = \pi \times r^2$$

Calculate the circumference of each of those circles too!

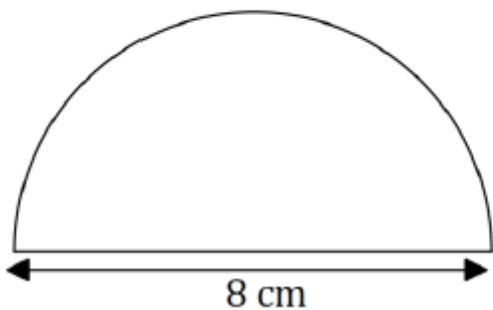


Calculate the areas of these circles.

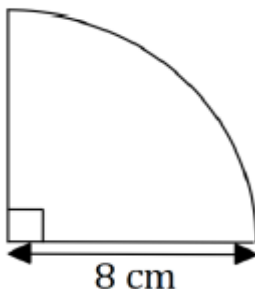


Calculate the perimeter of the shapes below.
Round your answers to a suitable degree of accuracy.

a)



b)

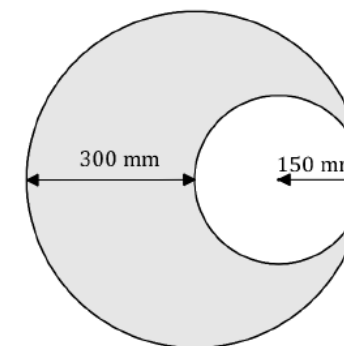


The handle of a paint pot is half the circumference of the pot (a semi-circle).

If the handle is 28 cm long, what is the diameter of the pot?
Give your answer correct to 3 significant figures.



Calculate the shaded area



Answers to questions—see Mr CJ or your maths teacher for solutions.