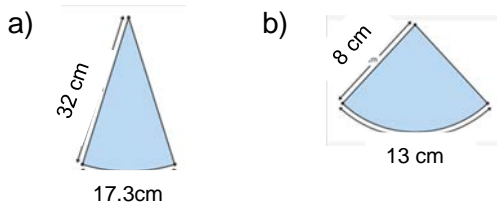




Topic: Length of arc, Perimeter and area of sectors and segments

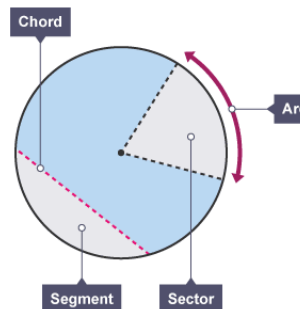
Starter

Calculate the perimeter of the sector:



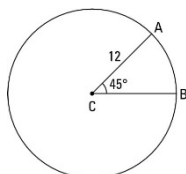
Top Tips!

Key parts of a circle:

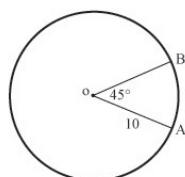


Skills:

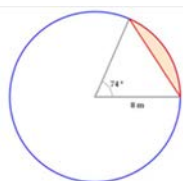
1. Calculate the length of the arc AB.



2. Find the area of the sector AOB.



3. Calculate the area of the segment.



Examination Question: 2012 Summer Link Applications U2 Higher Q13

The diagram shows a circular flower bed, which is split into two sectors, one for spring flowers and the other for roses.

The centre of the circle is O and the area of the minor sector is 31.3 m^2 .

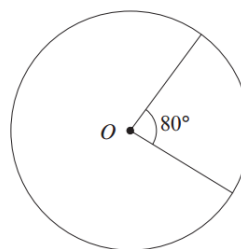


Diagram not drawn to scale

a) Calculate the radius of the flower bed.

[3]

b) Calculate the perimeter of the major sector of the flower bed.

[3]

Assessment for Learning

Video / QR code



Topic: Length of arc, Perimeter and area of sectors and segments

Starter

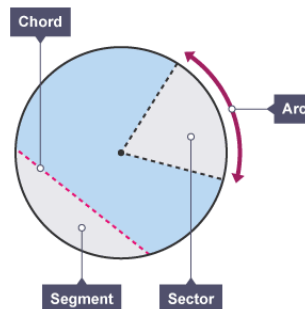
Calculate the perimeter of the sector:

a) b)

a) $32+32+17.3 = 81.3\text{cm}$
 b) $8+8+13 = 29\text{ cm}$

Top Tips!

Key parts of a circle:



Examination Question: : 2012 Summer Link Applications U2 Higher Q13

The diagram shows a circular flower bed, which is split into two sectors, one for spring flowers and the other for roses.

The centre of the circle is O and the area of the minor sector is 31.3 m^2 .

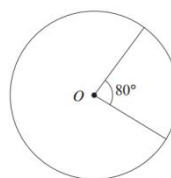


Diagram not drawn to scale

a) Calculate the radius of the flower bed.

$$31.3 = \frac{80}{360} \times \pi \times r^2$$

$$r^2 = \frac{31.3}{\frac{80}{360} \times \pi}$$

$$r = 6.7\text{m (1.d.p)}$$

[3]

b) Calculate the perimeter of the major sector of the flower bed.

$$\text{Hyd yr arc} = \frac{280}{360} \times \pi \times 13.4 = 32.7\text{m (1.ll.d)}$$

$$\text{Perimedry y sector} = 32.7 + 6.7 + 6.7 = 46.1\text{m}$$

[3]

Skills:

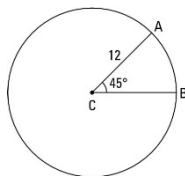
1. Calculate the length of the arc AB.

Length of arc

$$= \frac{\theta}{360} \times \pi \times d$$

$$= \frac{45}{360} \times \pi \times 24$$

$$= 9.4\text{ cm (1.d.p)}$$



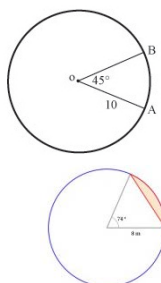
2. Find the area of the sector AOB.

Area of sector

$$= \frac{\theta}{360} \times \pi r^2$$

$$= \frac{45}{360} \times \pi \times 10^2$$

$$= 39.3\text{ cm}^2 \text{ (1.ll.d)}$$



3. Calculate the area of the segment.

$$\text{A sector} = \frac{74}{360} \times \pi \times 8^2 = 41.3\text{m}^2$$

$$\text{A triongl} = \frac{1}{2} ab \sin C$$

$$= \frac{1}{2} \times 8 \times 8 \times \sin 74 = 30.8\text{m}^2$$

$$\text{A segment} = 41.3 - 30.8 = 10.5\text{m}^2$$

Assessment for Learning

Video / QR code