Name:

Exam Style Questions

# Arc Length

Corbettmaths

Equipment needed: Pen, Calculator

**Guidance**

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

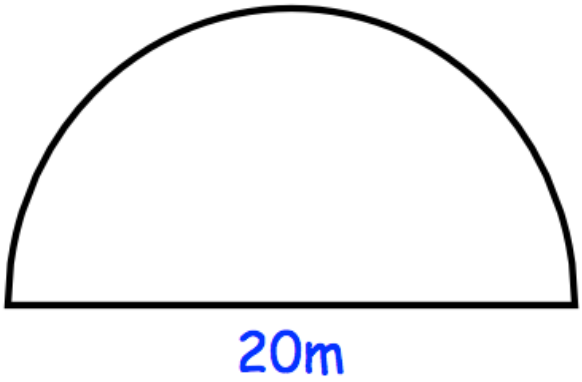
Video Tutorial

www.corbettmaths.com/contents

Video 58

Answers and Video Solutions

1. A semi-circle has diameter 20m.




Calculate the perimeter of the semi-circle.

.....m

**(2)**

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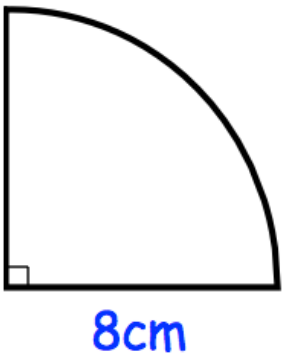
2.

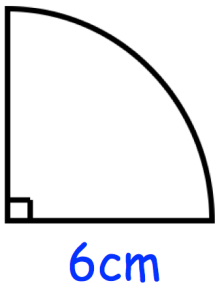



Calculate the perimeter of the sector.

.....cm

**(2)**

3. Shown below is a quarter circle.




(a) Work out the length of the arc.
Give your answer in terms of $\pi$

.....cm
**(2)**

(b) Work out the perimeter of the quarter circle.
Give your answer in terms of $\pi$

.....cm
**(1)**

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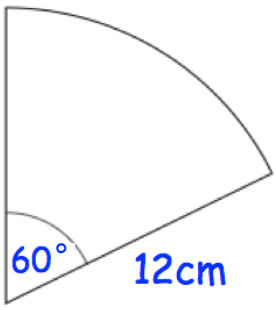
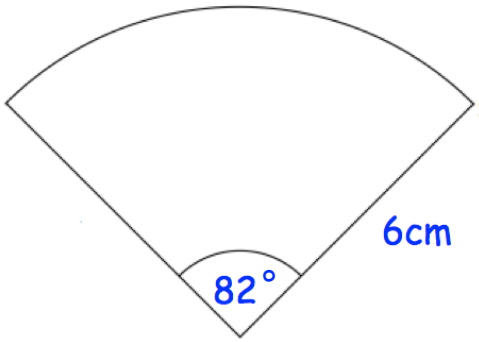
4. Shown is a sector of a circle.




Calculate the length of the arc.

.....cm
**(3)**

5.




Calculate the perimeter of the sector.
Give your answer to 2 decimal places.

.....cm

**(3)**

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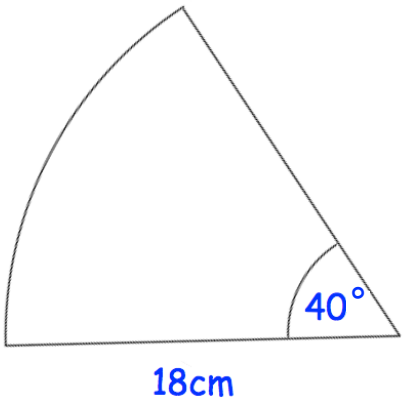
6.

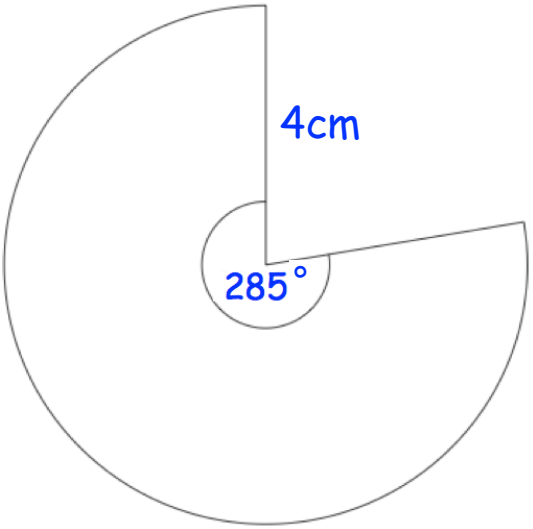



Find the length of the arc, giving your answer in terms of $\pi$

.....cm

**(3)**

7.




Calculate the perimeter of the sector.

.....cm

**(3)**

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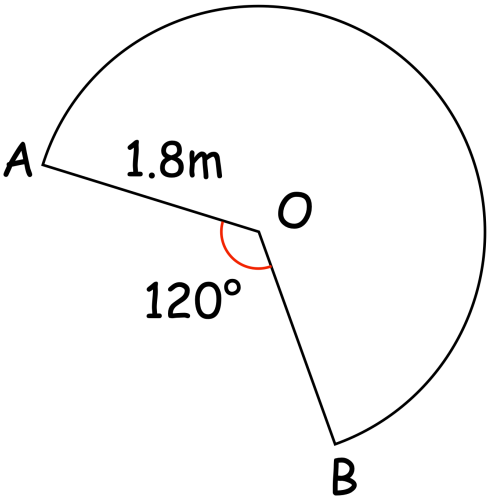
8. AOB is a sector of a circle, centre O and radius 1.8m.

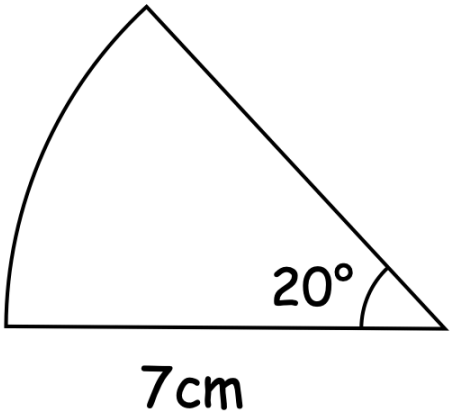



Calculate the perimeter of sector AOB.

.....m

**(3)**

9.




Max is calculating the perimeter of the sector.

Here is his method

$$\frac{20}{360} \times \pi \times 14$$

$$= 2.44346\text{cm}$$

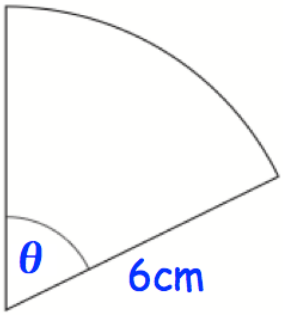
Explain Max's mistake.

……

……

**(1)**

10. Shown is a sector.




The arc length is 4.4cm.
Calculate the size of the angle.

.....°

**(3)**

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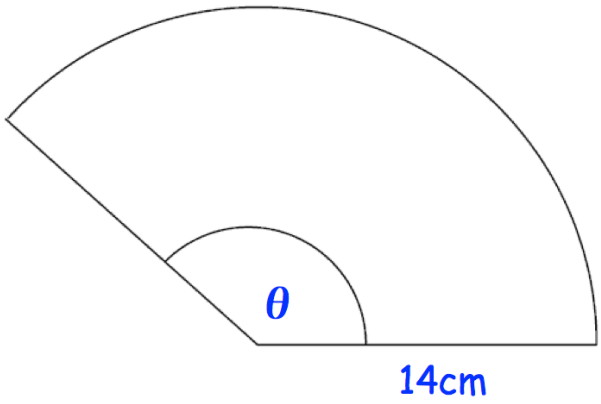
11.

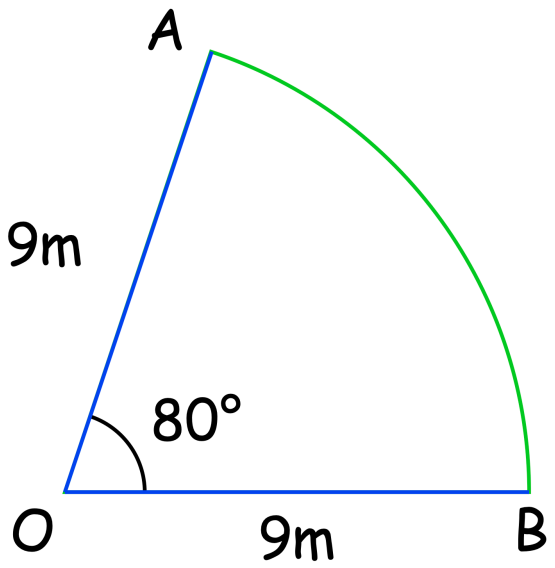



The perimeter of the sector is 57.32cm.
Calculate the size of the angle.

.....°

**(3)**

12. Maryam's garden is a sector, OAB.
There is a fence going around the outside of the garden.

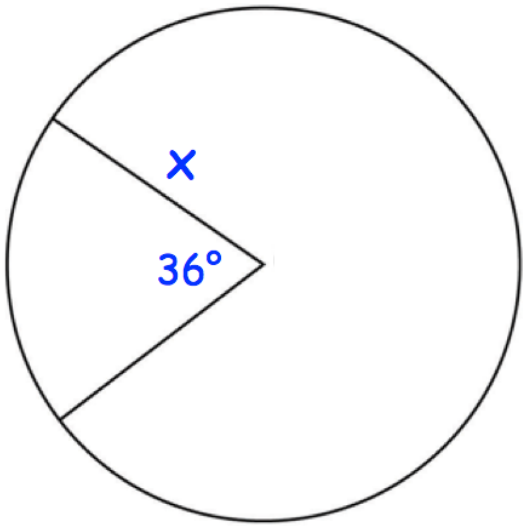



Maryam paints the straight sections of the fence, OA and OB, blue.
She paints the curved section of the fence, arc AB, green.

Work out the percentage of the fence painted green.
Give your answer to 2 decimal places.

.....%
**(4)**

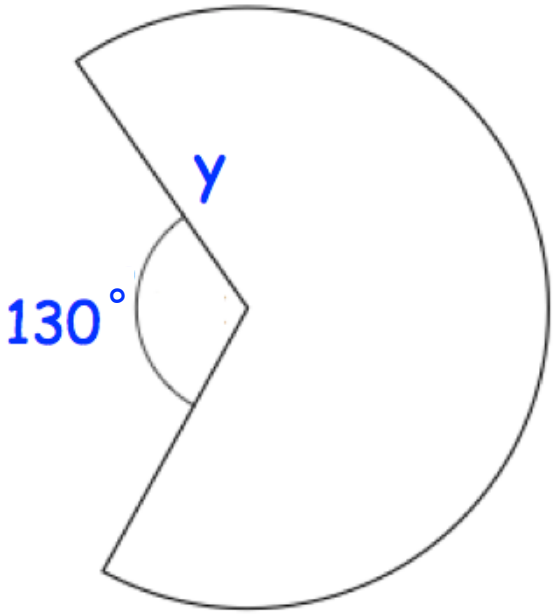
13.




The major arc length is 31.1cm.
Find the length of x, the radius of the circle.

.....cm
**(3)**

14.



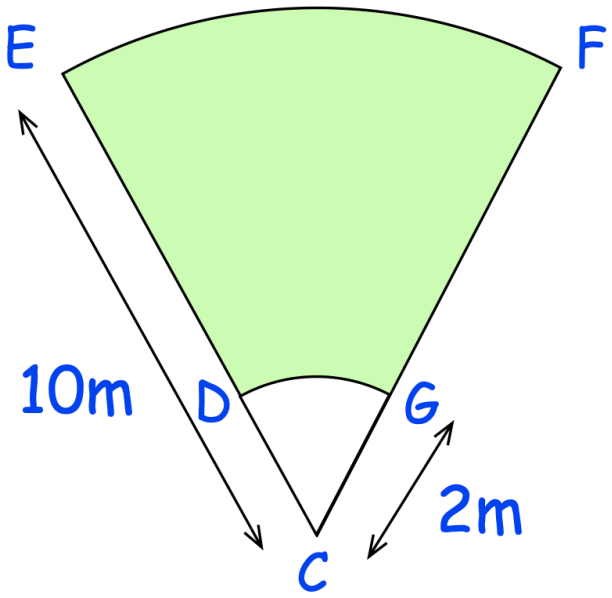

The perimeter of the sector is 1m.
Find the length of y, the radius of the circle.

.....cm
**(4)**

15. Holly has designed a garden which consists of a patio and a grass lawn.

The garden, CEF, is a sector of a circle, centre C.
The patio, CDG, is also a sector of a circle, centre C.
The shaded region, DEFG, is a grass lawn.

Angle ECF is 40°




Calculate the perimeter of the grass lawn, the shaded region.

.....m

**(4)**