

Name: _____

Exam Style Questions

Area of a Sector



Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

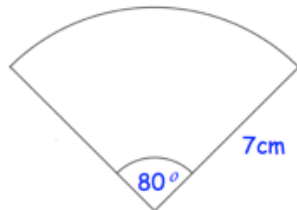
Revision for this topic

www.corbettmaths.com/contents

Video 46



1. The diagram shows a sector of a circle with radius 7cm.



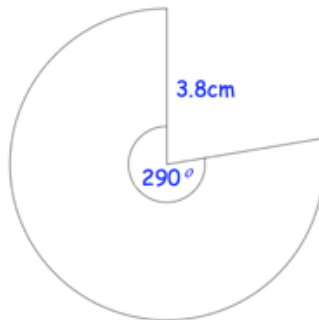
Work out the area of the sector.
Give your answer correct to 2 decimal places.

$$\frac{80}{360} \times \pi \times 7^2 = 34.208\dots$$

$$\underline{\underline{34.21}} \text{ cm}^2$$

(3)

2. The diagram shows a major sector of a circle with radius 3.8cm.



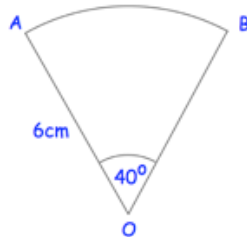
Find the area of the major sector.
Give your answer to 3 significant figures.

$$\frac{290}{360} \times \pi \times 3.8^2 =$$

$$\underline{\underline{36.5}} \text{ cm}^2$$

(3)

3. OAB is a sector of a circle.



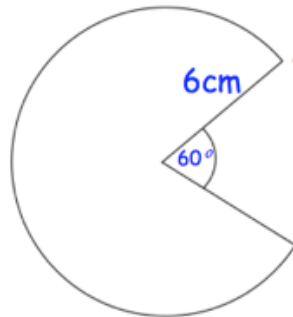
Find the area of the ~~minor~~ major sector.
Give your answer in terms of π .

$$\frac{40}{360} \times \pi \times 6^2$$

$$\frac{1}{9} \times \pi \times 36 = 4\pi$$

..... 4π cm^2
(3)

4. Shown is a major sector of a circle.



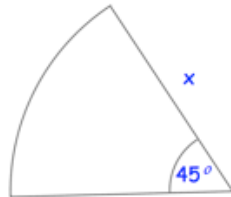
Find the area of the major sector.
Give your answer in terms of π .

$$\frac{300}{360} \times \pi \times 6^2$$

$$\frac{5}{6} \times \pi \times 36 = 30\pi$$

..... 30π cm^2
(3)

5. Shown below is a sector of a circle, with radius x cm.



The area of the sector is 18π cm²

Find the length of x .

$$\frac{45}{360} \times \pi \times x^2 = 18\pi$$

$$\frac{1}{8} \times \pi \times x^2 = 18\pi$$

$$\frac{1}{8} x^2 = 18$$

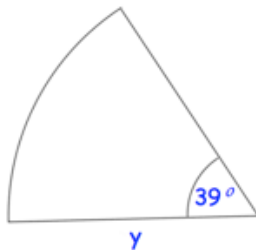
$$x^2 = 144$$

$$x = 12$$

12

.....cm
(3)

6. The area of the sector below is 2.48 cm²



Find the length of y .

Give your answer to 1 decimal place.

$$\frac{39}{360} \times \pi \times y^2 = 2.48$$

$$\div \pi \quad \div \pi$$

$$\frac{39}{360} \times y^2 = 0.789\dots$$

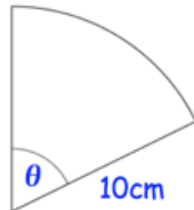
$$39 y^2 = 284.187\dots$$

$$y^2 = 7.286\dots$$

2.7

.....cm
(3)

7. Below is a sector of a circle with area $5\pi \text{ cm}^2$



Find the size of angle θ

$$\frac{\theta}{360} \times \pi \times 10^2 = 5\pi$$

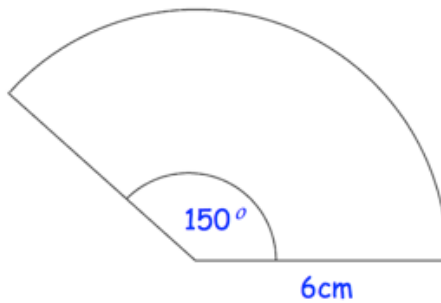
$$\theta \times 10^2 = 1800$$

$$\theta \times 100 = 1800$$

$$\theta = 18$$

.....^o
18
 (3)

8. Shown is a sector of a circle.



Find the area of the sector.
 Give your answer in terms of π

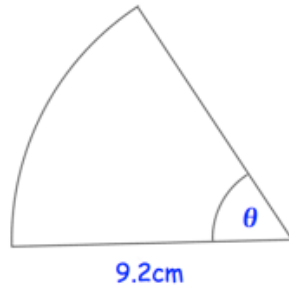
$$\frac{150}{360} \times \pi \times 6^2$$

$$\frac{15}{36} \times \pi \times 36$$

$$= 15\pi$$

.....^{cm²}
15 π
 (3)

9. Shown is a sector of a circle with radius 9.2cm.



The area of the sector is 38.4cm^2

Find the size of angle θ

Give your answer to 2 significant figures.

$$\frac{\theta}{360} \times \pi \times 9.2^2 = 38.4$$

$$\frac{\theta}{360} \times 9.2^2 = 12.22\dots$$

$$\frac{\theta}{360} \times 84.64 = 12.22\dots \dots\dots 52^\circ$$

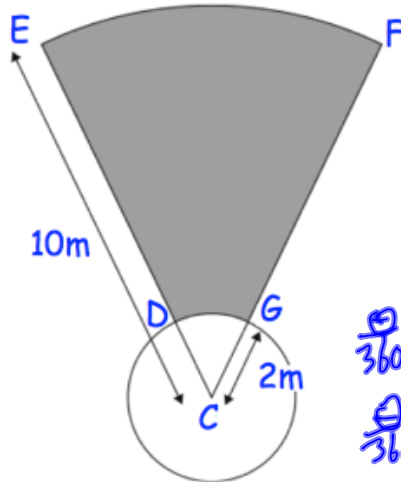
(3)

$$\frac{\theta}{360} = 0.144\dots$$

10. The shot putt throwing area, on a school's sport field, is formed from the sectors of two circles with centre C.



The area of sector CDG is 1.2m^2 .



$$\frac{\theta}{360} \times \pi \times 2^2 = 1.2$$

$$\frac{\theta}{360} \times \pi = 0.3$$

$$\theta \times \pi = 108$$

$$\theta = 34.37\dots$$

Calculate the area of the shaded region.
Give your answer correct to 2 significant figures.

$$\frac{34.37\dots}{360} \times \pi \times 10^2 = 30$$

$$30 - 1.2 = 28.8$$

$$\underline{28.8} \text{ m}^2$$

(5)

11.



The area of the major sector is 180cm^2 .

Calculate the perimeter of the major sector.
Give your answer to 1 decimal place.

$$\frac{240}{360} \times \pi \times r^2 = 180$$

$$\frac{2}{3} \times \pi \times r^2 = 180$$

$$\pi r^2 = 270$$

$$r^2 = 85.94366\dots$$

$$r = 9.2705\dots$$

$$\frac{2}{3} \times \pi \times (2 \times 9.2705\dots) + 2 \times 9.2705\dots = 57.4 \text{ cm}$$

(5)