

# Circle Problems

## Difficulty: Hard

### Question Paper 2

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Mensuration
Sub-Topic	Circle Problems
Paper	Paper 2
Difficulty	Hard
Booklet	Question Paper 2

**Time allowed:** 40 minutes

**Score:** /31

**Percentage:** /100

#### Grade Boundaries:

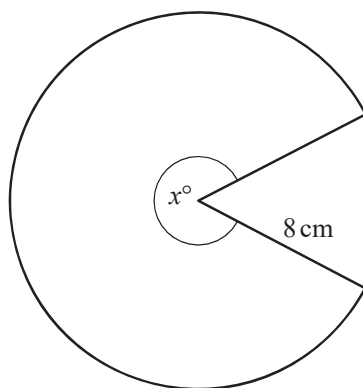
##### CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

##### CIE IGCSE Maths (0980)

9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%

## Question 1



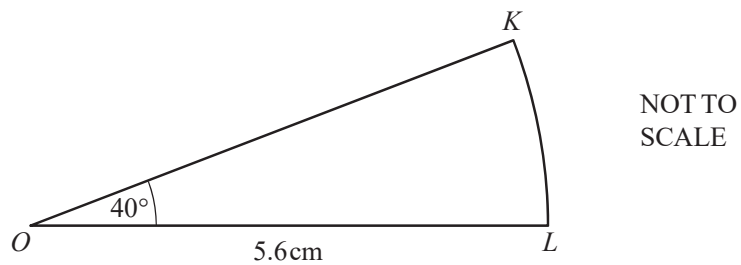
NOT TO  
SCALE

The diagram shows a sector of a circle of radius 8 cm.  
The angle of the sector is  $x^\circ$ .  
The perimeter of the sector is  $(16 + 14\pi)$  cm.

Find the value of  $x$ .

[3]

## Question 2



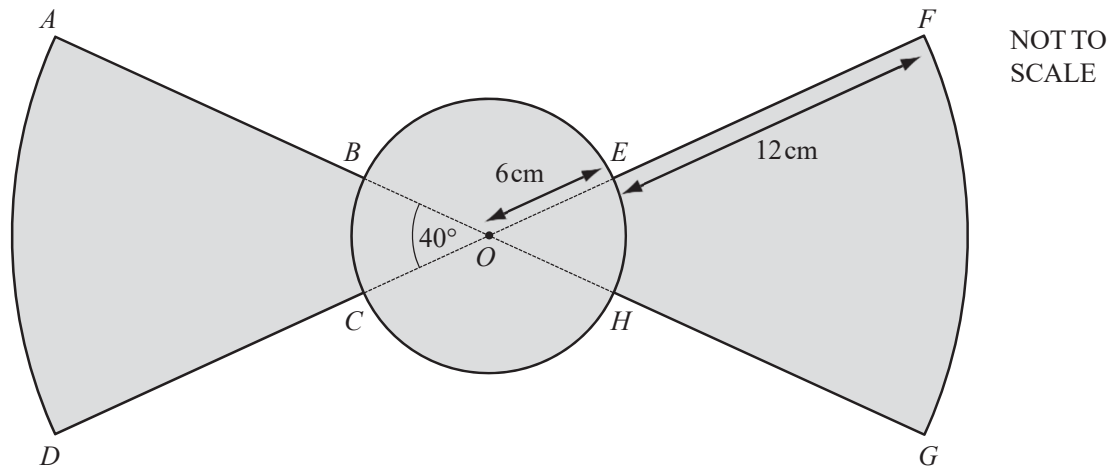
$OKL$  is a sector of a circle, centre  $O$ , radius  $5.6\text{ cm}$ .  
Angle  $KOL = 40^\circ$ .

Calculate

(a) the area of the sector, [2]

(b) the perimeter of the sector. [2]

### Question 3



The diagram shows part of a fan.

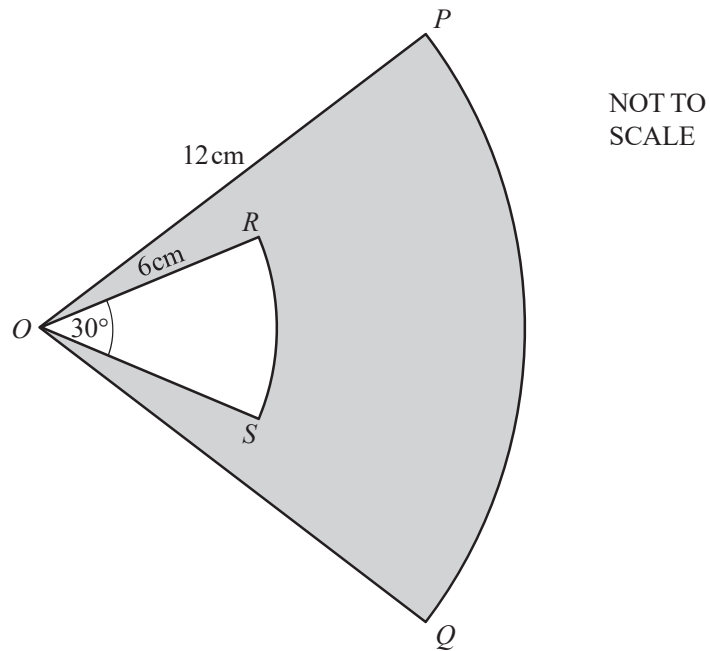
$OFG$  and  $OAD$  are sectors, centre  $O$ , with radius  $18\text{ cm}$  and sector angle  $40^\circ$ .

$B, C, H$  and  $E$  lie on a circle, centre  $O$  and radius  $6\text{ cm}$ .

Calculate the shaded area.

[4]

## Question 4



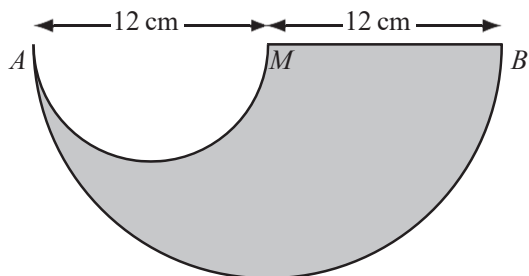
$OPQ$  is a sector of a circle, radius 12 cm, centre  $O$ . Angle  $POQ = 50^\circ$ .

$ORS$  is a sector of a circle, radius 6 cm, also centre  $O$ . Angle  $ROS = 30^\circ$ .

(a) Calculate the shaded area. [3]

(b) Calculate the perimeter of the shaded area,  $PORSOQP$ . [3]

## Question 5



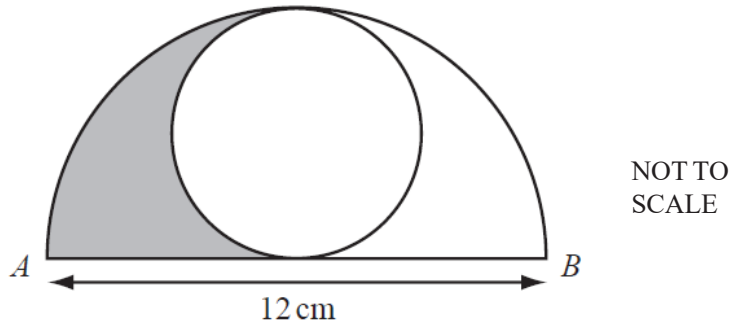
The shape above is made by removing a small semi-circle from a large semi-circle.

$$AM = MB = 12 \text{ cm}$$

Calculate the area of the shape.

[3]

## Question 6



The largest possible circle is drawn inside a semicircle, as shown in the diagram. The distance  $AB$  is 12 centimetres.

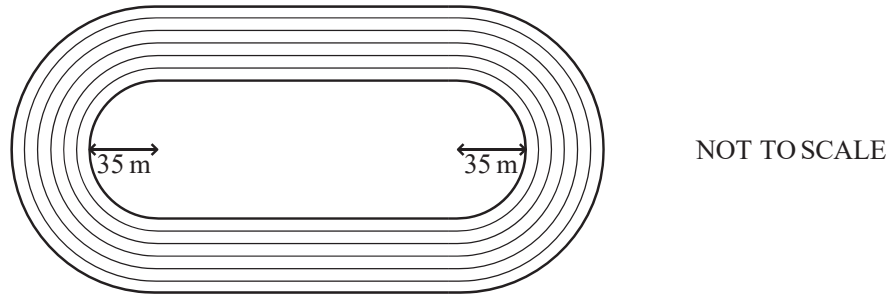
(a) Find the shaded area.

[4]

(b) Find the perimeter of the shaded area.

[2]

## Question 7



The diagram shows an athletics track with six lanes.

The distance around the inside of the inner lane is 400 metres.

The radius of each semicircular section of the inside of the inner lane is 35 metres.

(a) Calculate the total length of the two straight sections at the inside of the inner lane. [3]

(b) Each lane is one metre wide.

Calculate the difference in the distances around the outside of the outer lane and the inside of the inner lane. [2]