

# Circle Problems

## Difficulty: Easy

### Question Paper 3

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Mensuration
Sub-Topic	Circle Problems
Paper	Paper 2
Difficulty	Easy
Booklet	Question Paper 3

**Time allowed:** 40 minutes

**Score:** /31

**Percentage:** /100

#### Grade Boundaries:

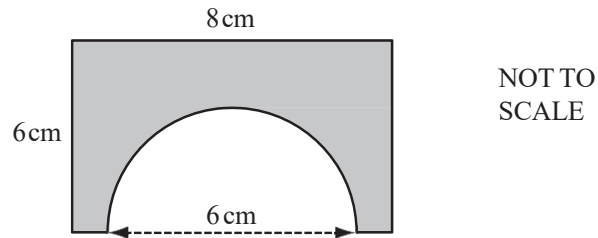
##### CIE IGCSE Maths (0580)

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

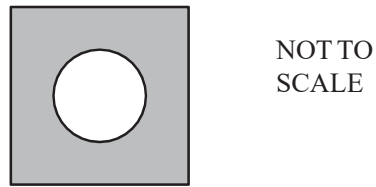


A semicircle of diameter 6 cm is cut from a rectangle with sides 6 cm and 8 cm.

Calculate the perimeter of the shaded shape, correct to 1 decimal place.

[3]

## Question 2

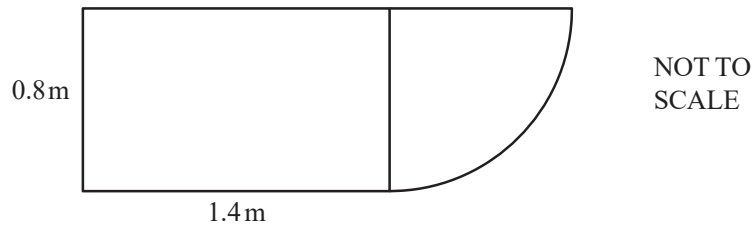


The diagram shows a circle of radius 5 cm in a square of side 18 cm.

Calculate the shaded area.

[3]

### Question 3

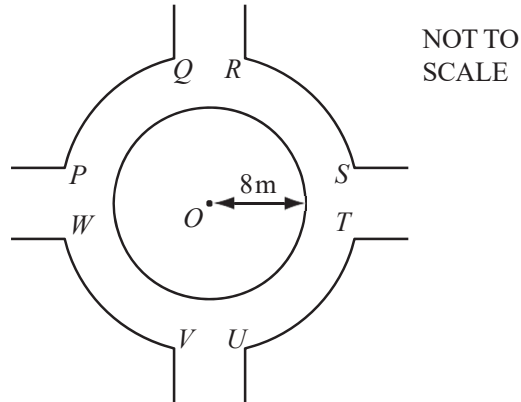


The top of a desk is made from a rectangle and a quarter circle.  
The rectangle measures 0.8m by 1.4m.

Calculate the surface area of the top of the desk.

[3]

## Question 4



The diagram shows the junction of four paths.  
In the junction there is a circular area covered in grass.  
This circle has centre  $O$  and radius 8 m.

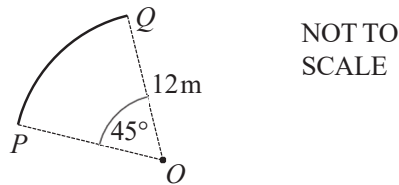
(a) Calculate the area of grass. [2]

$$A = \pi r^2$$

$$= 64\pi$$

$$= 201$$

(b)



The arc  $PQ$  and the other three identical arcs,  $RS$ ,  $TU$  and  $VW$  are each part of a circle, centre  $O$ , radius 12m.

The angle  $POQ$  is  $45^\circ$ .

The arcs  $PQ$ ,  $RS$ ,  $TU$ ,  $VW$  and the circumference of the circle in part(a) are painted white. [4]  
Calculate the total length painted white.

## Question 5

A spacecraft made 58 376 orbits of the Earth and travelled a distance of  $2.656 \times 10^9$  kilometres.

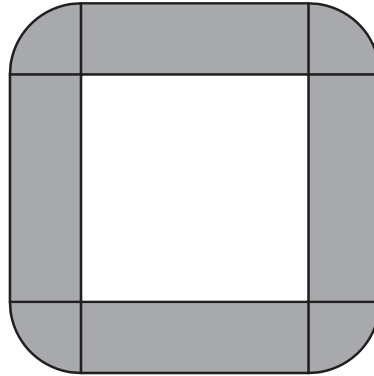
(a) Calculate the distance travelled in 1 orbit correct to the nearest kilometre. [2]

(b) The orbit of the spacecraft is a circle.

Calculate the radius of the orbit. [2]

## Question 6

A large conference table is made from four rectangular sections and four corner sections.  
Each rectangular section is 4 m long and 1.2 m wide.  
Each corner section is a quarter circle, radius 1.2 m.

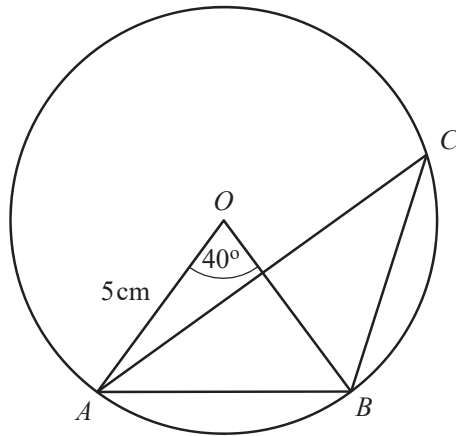


NOT TO  
SCALE

Each person sitting at the conference table requires one metre of its outside perimeter.  
Calculate the greatest number of people who can sit around the **outside** of the table.  
Show all your working.

[3]

## Question 7



NOT TO  
SCALE

$A$ ,  $B$  and  $C$  are points on a circle, centre  $O$ .  
Angle  $AOB = 40^\circ$ .

(a) (i) Write down the size of angle  $ACB$ . [1]

(ii) Find the size of angle  $OAB$ . [1]

(b) The radius of the circle is 5 cm.

(i) Calculate the length of the minor arc  $AB$ . [2]

(ii) Calculate the area of the minor sector  $OAB$ . [2]

## Question 8

The radius of the Earth at the equator is approximately  $6.4 \times 10^6$  metres.

Calculate the circumference of the Earth at the equator. Give your answer in standard form, correct to 2 significant figures.

[3]