

Circles and Semicircles

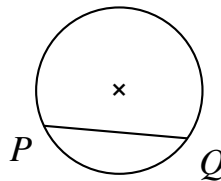
For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Name _____

Total marks: **27**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

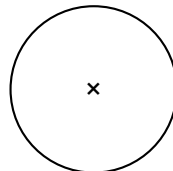
- 1 (a) The centre of this circle is marked with a cross (x).



Write down the mathematical name of the straight line PQ .

.....
(1)

- (b) Here is another circle.



On the diagram, draw a segment of the circle.
Shade the segment.

(1)
(Total for Question 1 is 2 marks)

2 A paper fan opens out to make a semicircle of radius 20 cm.

- (a) A strip of lace is sewn along the curved edge of the fan.
Work out the length of the lace.
Give your answer correct to the nearest centimetre.

..... cm
(2)

- (b) Work out the area of the fan.
Give your answer in terms of π .

..... cm^2
(2)

(Total for Question 2 is 4 marks)

3 The diagram shows a sector OAB of a circle with centre O .
Angle $AOB = 90^\circ$ and $OA = OB = 7.5$ cm.

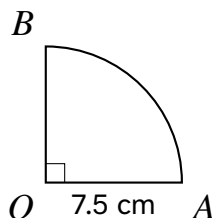


Diagram **NOT** accurately drawn

Work out the perimeter of the sector.
Give your answer correct to 1 decimal place.

..... cm
(3)

(Total for Question 3 is 3 marks)

- 4 Table top A is a quarter circle with radius 1.2 m.
Table top B is a circle.
Table top A and table top B have the same area.

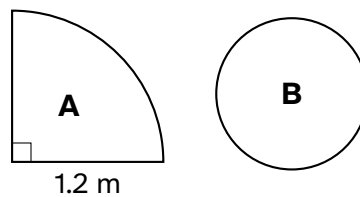


Diagram **NOT** accurately drawn

Show that the radius of table top B is 0.6 m.

(3)

(Total for Question 4 is 3 marks)

- 5 A flower bed is in the shape of a semicircle.
The diameter of the flower bed is 8 m.
Ali puts fertiliser on the flower bed.
One box of fertiliser covers 5 m^2

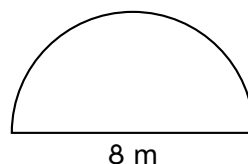


Diagram **NOT** accurately drawn

How many boxes of fertiliser does Ali need?

.....
(3)

(Total for Question 5 is 3 marks)

- 6 The diagram shows a quarter circle OAB , centre O and radius 12 cm. A semicircle is drawn with OA as its diameter.

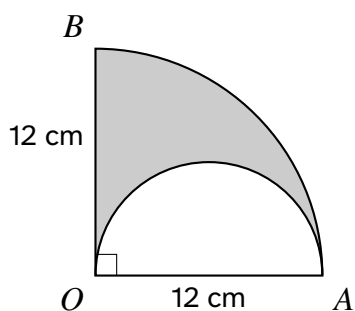


Diagram **NOT** accurately drawn

Work out the area of the shaded region.
Give your answer correct to 3 significant figures.

..... cm^2
(4)

(Total for Question 6 is 4 marks)

- 7 The diagram shows a square tile $ABCD$ with sides of length 10 cm.
 BED is an arc of a circle with centre A and BD is a diagonal of the square.

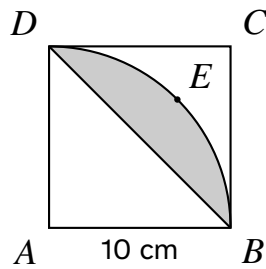


Diagram **NOT** accurately drawn

Work out the area of the shaded segment.
Give your answer correct to 3 significant figures.

..... cm^2
(3)

(Total for Question 7 is 3 marks)

- 8 The diagram shows the plan of Ravi's garden.
 $ABCD$ is a rectangle with $AB = 18$ m and $BC = 10$ m.
 The pond is a quarter circle with centre D and radius 7 m.
 The rest of the garden is lawn.
 Ravi is going to spray the lawn with weedkiller.
 One bottle of weedkiller covers 35 m^2 of lawn.
 Each bottle costs £6.79

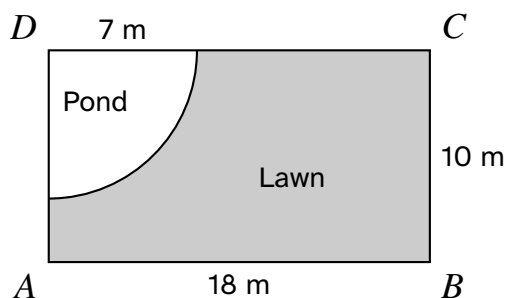


Diagram **NOT** accurately drawn

Work out how much it will cost Ravi to buy all the bottles of weedkiller he needs.

£
 (5)

(Total for Question 8 is 5 marks)