

Area and Perimeter of Compound Shapes with Circles

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

Name _____

Total marks: **28**

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

- 1** The diagram shows two circles with the same centre.
The larger circle has diameter 14 cm.

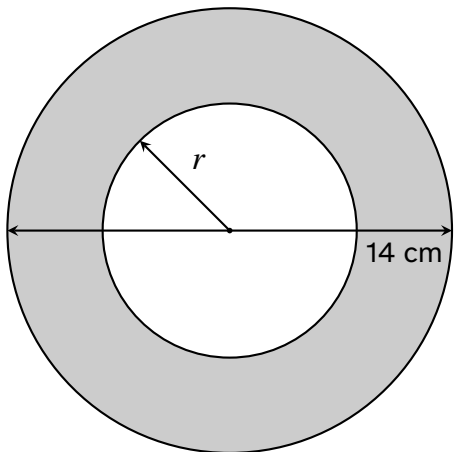


Diagram **NOT** accurately drawn

The area of the shaded ring is $33\pi \text{ cm}^2$.
Work out the radius, r , of the smaller circle.

..... cm
(3)

(Total for Question 1 is 3 marks)

- 2 A circular pond has an area of 20 m^2 .
Work out the circumference of the pond.
Give your answer correct to 3 significant figures.

..... m
(3)

(Total for Question 2 is 3 marks)

- 3 A trundle wheel is used to measure the length of a path.
The wheel has a radius of 25 cm.
The wheel makes 58 complete turns along the path.
Work out the length of the path.
Give your answer in metres, correct to 3 significant figures.

..... m
(3)

(Total for Question 3 is 3 marks)

- 4 The perimeter of a semicircle is 36 cm.
Work out the radius of the semicircle. Give your answer correct to 3 significant figures.

..... cm
(3)

(Total for Question 4 is 3 marks)

- 5 The shape is made from a square and four semicircles.
The square has sides of length 6 cm.
Each side of the square is the diameter of one of the semicircles.

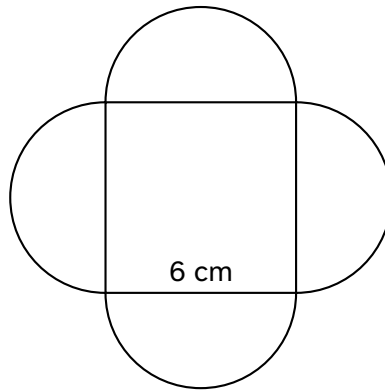


Diagram **NOT** accurately drawn

- (a) Work out the perimeter of the shape.
Give your answer correct to 3 significant figures.

..... cm
(2)

- (b) Work out the area of the shape.
Give your answer correct to 3 significant figures.

..... cm²
(2)

(Total for Question 5 is 4 marks)

- 6 The diagram shows a square $ABCD$ and a circle.
The circle touches all four sides of $ABCD$.
 $PQRS$ is a square with its vertices P, Q, R and S on the circle.

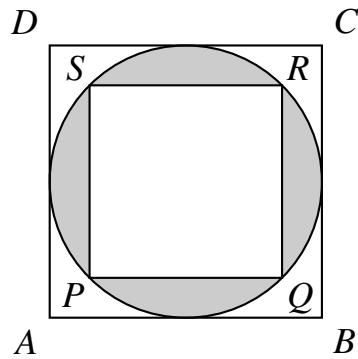


Diagram **NOT** accurately drawn

Show that $\frac{\text{area of shaded region}}{\text{area of square } ABCD} = \frac{\pi - 2}{4}$

(3)

(Total for Question 6 is 3 marks)

- 7 The diagram shows an isosceles triangle ABC with $AC = BC = 16$ cm and $AB = 20$ cm. A semicircle has been cut from the triangle. The centre of the semicircle is M , the midpoint of AB . The diameter of the semicircle is 12 cm.

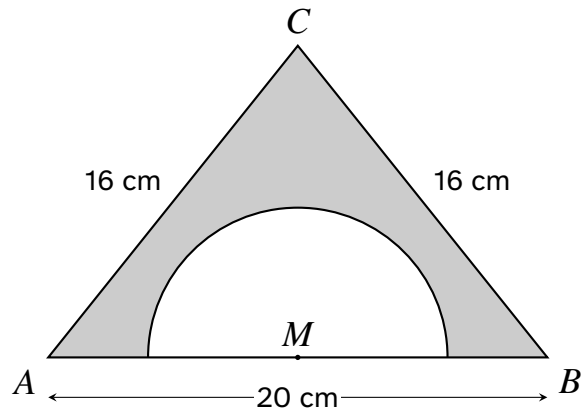


Diagram **NOT** accurately drawn

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

..... cm²
(4)

(Total for Question 7 is 4 marks)

- 8 The diagram shows a flower bed.
It is made from a rectangle and a quarter circle with centre O .

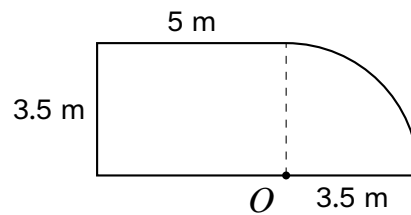


Diagram **NOT** accurately drawn

Ines wants to put edging around the whole edge of the flower bed.
Edging is sold in 2 m lengths.
Each length costs £3.75
Ines has £40
Does Ines have enough money to buy all the edging she needs?
You must show all your working.

(5)

(Total for Question 8 is 5 marks)
