

Circles - Area and Circumference

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 Below shows different parts of a circle indicated by an arrow.

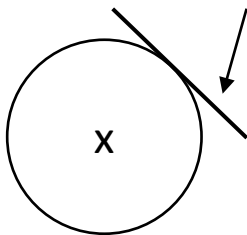
(Level 3)

X indicates the centre of the circle.

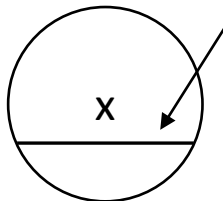
Match each part of a circle with the correct name.

One has been done for you.

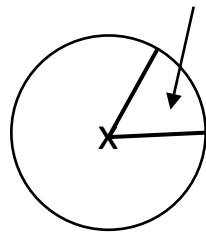
[5 marks]



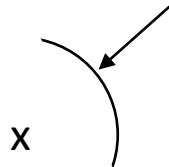
Arc



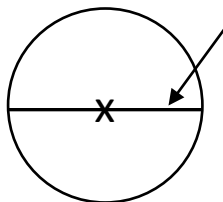
Chord



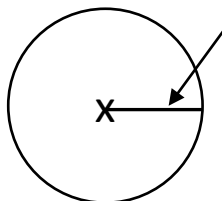
Sector



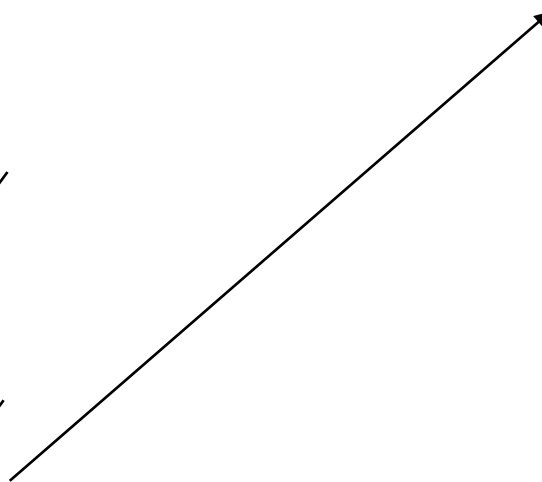
Radius



Diameter

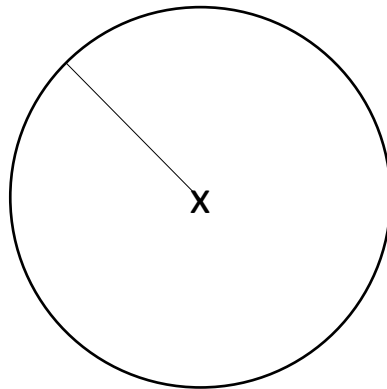


Tangent



- 2 Consider the following circle with centre at X and radius of 3.7m.

(Level 3)



Not drawn accurately

- 2(a) Find the diameter of this circle.

[1 mark]

Answer _____

- 2(b) Find the circumference of this circle to 2 decimal places.

[2 marks]

Answer _____



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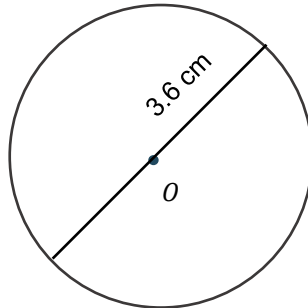


Turn over ►

- 3 The circle below has centre O and radius 3.6 cm

(Level 4)

Not drawn
accurately



- 3(a) Find the circumference of the circle, giving your answer in terms of π .

[2 marks]

Answer _____

- 3(b) Find the area of the circle.
Give your answer to 1 decimal place.

[2 marks]

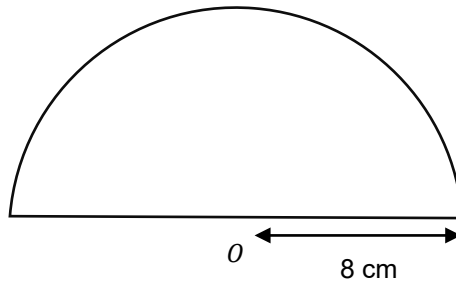
Answer _____ cm^2

Turn over for next question

- 4 The semi-circle below has centre O and a radius of 8 cm

(Level 4)

Not drawn
accurately



Find the perimeter of the semi-circle.

Give your answer to 1 decimal place.

[3 marks]

Answer _____



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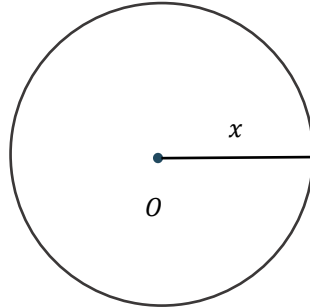
Turn over ►

5

The circle below has centre O and a radius of x cm

(Level 5)

Not drawn
accurately



The area of the circle is 150 cm^2

Find the value of x .

Give your answer to 1 decimal place.

[3 marks]

Answer _____

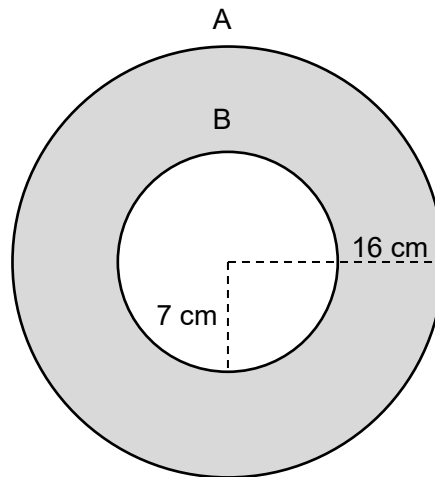
Turn over for next question

6

Circle A has a radius of 16 cm

(Level 5)

Circle B has a radius of 7 cm

Not drawn
accurately

6(a)

Calculate the area of circle A. Give your answer in terms of π

[1 mark]

Answer _____ cm^2

6(b)

Calculate the shaded area.

[2 marks]

Answer _____ cm^2

Turn over for next question

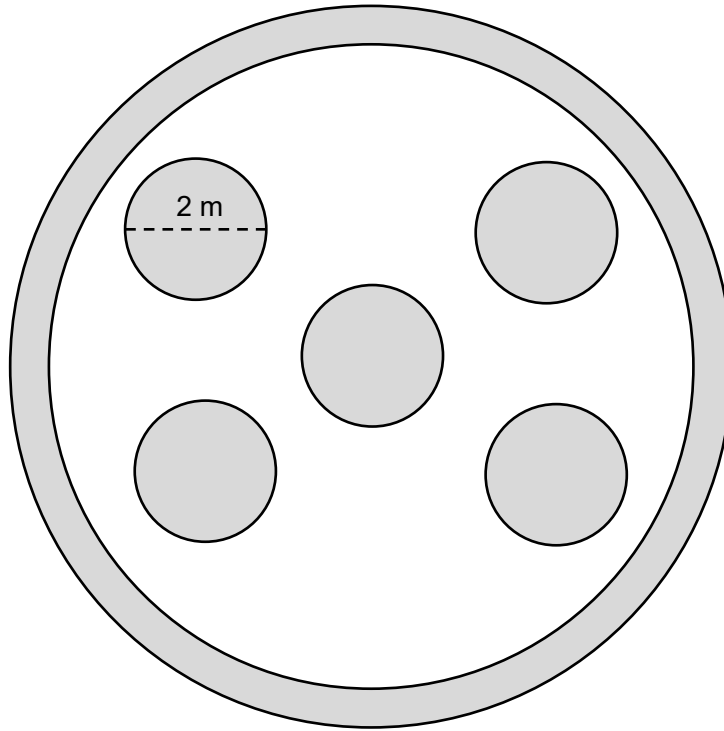
7

The largest circle in the diagram below has a radius of 10m

(Level 5)

The radius of the white circle is 7m

Each small grey circle has a diameter of 2m



Not drawn
accurately

What percentage of the area in the diagram is shaded?

[4 marks]

Answer _____ %

Turn over for next question

8 A set of circles have radii in the ratio 1 : 2 : 3 : 5

(Level 6)

What is the ratio of their areas?

Give your answer in its simplest terms.

[2 marks]

Answer _____



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Turn over ►

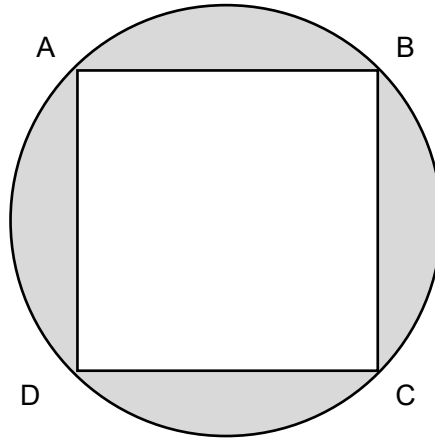
9

The diagram below shows a square inside a circle.

(Level 7)

The vertices of the square touch the circumference of the circle.

The radius of the circle below is 6cm.



Not drawn
accurately

9(a)

Calculate the area of the square, ABCD

[3 marks]

Answer _____ cm^2

9(b)

Calculate the shaded area between the circle and the square.

Give your answer in terms of π

[2 marks]

Answer _____ cm^2

Turn over for next question