

# Edexcel GCSE

## Mathematics (Linear) – 1MA0

# AREA & CIRCUMFERENCE OF CIRCLES

### Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.

Tracing paper may be used.

### Items included with question papers

Nil



### Instructions

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Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

### Information

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The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

### Advice

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Read each question carefully before you start to answer it.

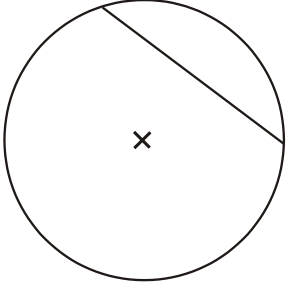
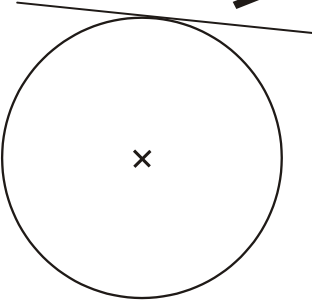
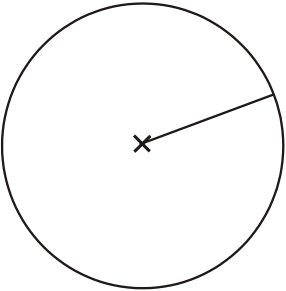
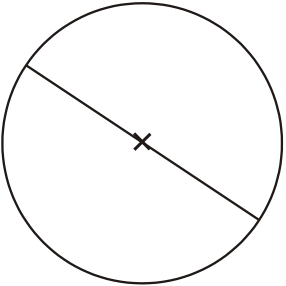
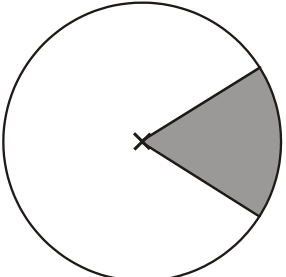
Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Here are 5 diagrams and 5 labels.  
 In each diagram the centre of the circle is marked with a cross (×).

Match each diagram to its label.  
 One has been done for you.

| Diagram   | Label   |
|---|---|
|    | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">           Circle and tangent         </div>  |
|   | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">           Circle and radius         </div>   |
|  | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">           Circle and chord         </div>    |
|  | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">           Circle and sector         </div>   |
|  | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">           Circle and diameter         </div> |

**(3 marks)**

2. Here are some diagrams relating to a circle.

Draw an arrow from each of the diagrams to its mathematical name.  
The arrow showing an arc is drawn for you.

The diagrams and their corresponding labels are:

- Diagram 1: A circle with a sector shaded. An arrow points from this diagram to the box labeled "Arc".
- Diagram 2: A circle with a center point and a curved line segment (arc) drawn on its circumference.
- Diagram 3: A circle with a center point and a straight line segment (diameter) passing through the center.
- Diagram 4: A circle with a center point and a shaded segment (segment) bounded by a chord and the arc above it.
- Diagram 5: A circle with a center point and a straight line segment (tangent) touching the circle at a single point.

The labels in boxes are:

- Arc
- Circle and diameter
- Circle and sector
- Circle and tangent
- Circle and segment

**(3 marks)**

3. The radius of a circle is 3.60 m.

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

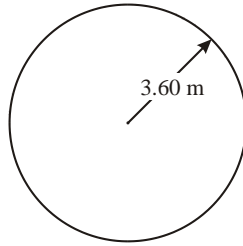


Diagram **NOT**  
accurately drawn

.....

**(3 marks)**

4. The diameter of a wheel on Harry's bicycle is 0.65 m.

Calculate the circumference of the wheel.  
Give your answer correct to 2 decimal places.

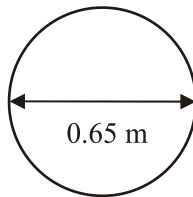


Diagram **NOT**  
accurately drawn

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**(3 marks)**

- 5.

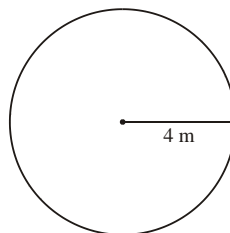


Diagram **NOT**  
accurately drawn

The radius of a circle is 4 m.

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

.....

**(3 marks)**

6. A circle has a radius of 6.1 cm.  
Work out the circumference of the circle.

Give your answer correct to 3 significant figures.

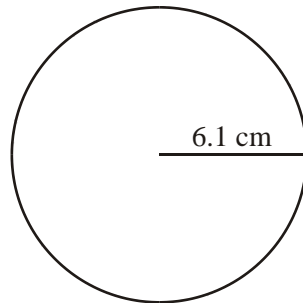


Diagram NOT  
accurately drawn

.....

**(3 marks)**

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7. The radius of a circle is 6.4 cm.  
Work out the circumference of this circle.

Give your answer correct to 1 decimal place.

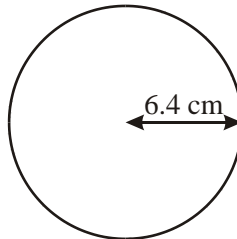


Diagram NOT  
accurately drawn

.....

**(3 marks)**

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8.  
The radius of the circle is 9.7 cm.  
Work out the area of the circle.  
Give your answer to 3 significant figures.

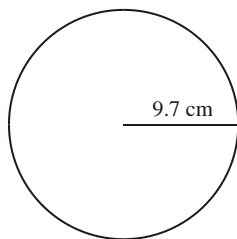


Diagram NOT  
accurately drawn

.....

**(3 marks)**

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9. The diameter of a circle is 12 centimetres.

- (a) Work out the circumference of the circle.  
Give your answer, in centimetres, correct to 1 decimal place.

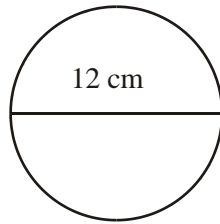


Diagram **NOT**  
drawn accurately

.....

**(3 marks)**

10. Here is a tile in the shape of a semicircle.

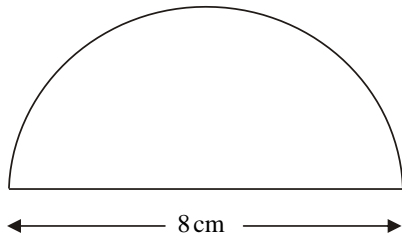


Diagram **NOT**  
accurately drawn

The diameter of the semicircle is 8 cm.

Work out the perimeter of the tile.  
Give your answer correct to 2 decimal places.

..... cm

**(3 marks)**

11.

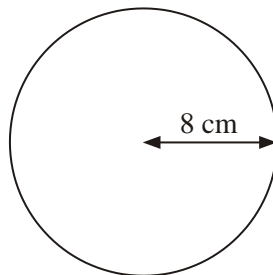


Diagram **NOT**  
accurately drawn

The radius of this circle is 8 cm.

Work out the circumference of the circle.  
Give your answer correct to 2 decimal places.

..... cm

**(3 marks)**

12.

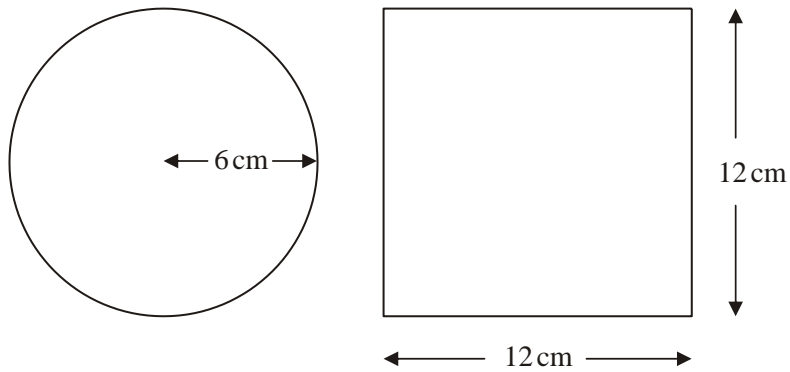


Diagram **NOT** accurately drawn

A circle has a radius of 6 cm.

A square has a side of length 12 cm.

Work out the difference between the area of the circle and the area of the square.  
Give your answer correct to one decimal place.

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**(4 marks)**

13. The top of a table is a circle.  
The radius of the top of the table is 50 cm.



- (a) Work out the area of the top of the table.

.....cm<sup>2</sup>

**(2)**

The base of the table is a circle.  
The diameter of the base of the table is 40 cm.

- (b) Work out the circumference of the base of the table.

.....cm

**(2)**

**(4 marks)**

14.

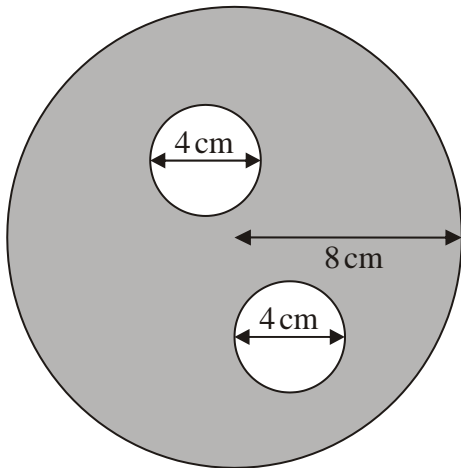


Diagram **NOT** accurately drawn

The diagram shows two small circles inside a large circle.  
The large circle has a radius of 8 cm.

Each of the two small circles has a diameter of 4 cm.

(a) Write down the radius of each of the small circles.

..... cm

(1)

(b) Work out the area of the region shown shaded in the diagram.  
Give your answer correct to one decimal place.

..... cm<sup>2</sup>

(4)

(5 marks)



