Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Arc length and sector area

Time allowed: 45 minutes

Subject code **0580**

Mathematics

Questions from Paper 1 and Paper 2

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
You may use a calculator.

Total marks

/ 37

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

Information

- This paper has 10 questions worth 37 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

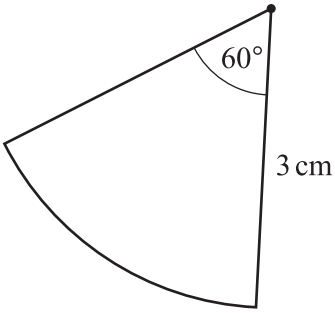
Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

1



NOT TO SCALE

The diagram shows a sector of a circle with radius 3 cm and sector angle 60°.

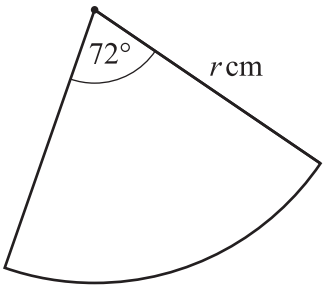
Calculate the area of the sector.
Give your answer in terms of π in its simplest form.

..... cm^2 [2]

Arc length and sector area Click for more variations

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2



NOT TO SCALE

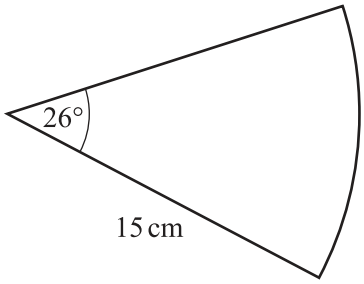
The diagram shows a sector of a circle with radius r cm and sector angle 72°.
The arc length is 9.35 cm.

Calculate the value of r.

$r =$ ..... [2]

Arc length and sector area Click for more variations

3



NOT TO SCALE

The diagram shows a sector of a circle with radius 15 cm.

Calculate the perimeter of this sector.

Answer ..... cm [3]

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Arc length and sector area Click for more variations

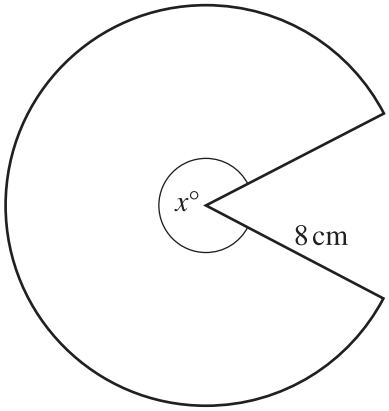
4 The perimeter of a sector of a circle with radius 8 cm is 26 cm.

Calculate the angle of this sector.

..... [3]

Arc length and sector area Click for more variations

5



NOT TO SCALE

The diagram shows a sector of a circle of radius 8 cm.
The angle of the sector is $x°$.
The perimeter of the sector is $(16 + 14\pi)$ cm.

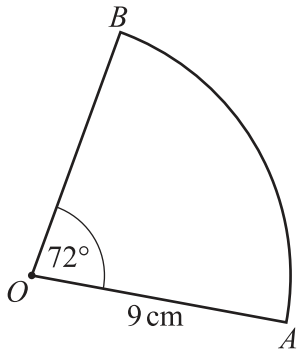
Find the value of x.

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Answer x = ... [3]

Arc length and sector area Click for more variations

6



NOT TO SCALE

The diagram shows a sector of a circle, centre O, radius 9 cm.
The sector angle is 72°.

(a) Calculate the length of the arc AB.

..... cm [2]

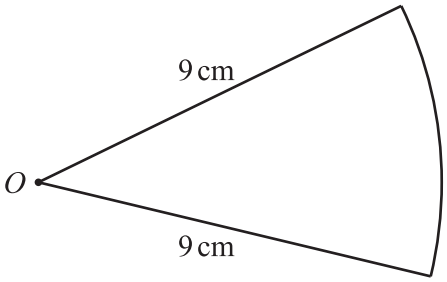
(b) Calculate the area of the sector AOB.

..... cm^2 [2]

(a) Arc length and sector area (b) Arc length and sector area Click for more variations

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7 The diagram shows a sector of a circle with centre O and radius 9 cm.



NOT TO SCALE

The perimeter of the sector is $(18 + 2\pi)$ cm.

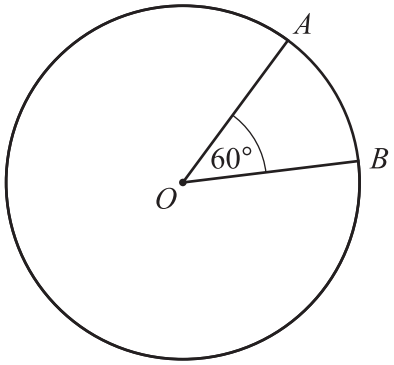
Find the area of the sector.
Give your answer in terms of π.

..... cm^2 [4]

Arc length and sector area Click for more variations

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8



NOT TO SCALE

The diagram shows a circle, centre O, radius 12 cm.

(a) Work out the area of the **minor** sector AOB.
Give your answer in terms of π in its simplest form.

..... cm^2 [2]

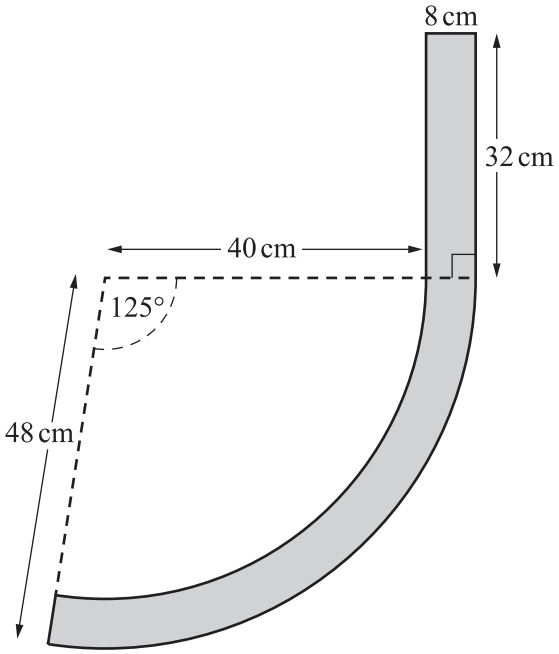
(b) Calculate the length of the **major** arc AB.
Give your answer in terms of π in its simplest form.

..... cm [3]

(a) Arc length and sector area (b) Arc length and sector area Click for more variations

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9



NOT TO SCALE

The diagram shows the cross section of part of a park bench.
It is made from a rectangle of length 32 cm and width 8 cm and a curved section.
The curved section is made from two concentric arcs with sector angle 125°.
The inner arc has radius 40 cm and the outer arc has radius 48 cm.

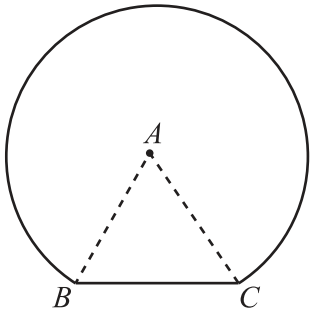
Calculate the area of the cross section correct to the nearest square centimetre.

..... cm^2 [5]

Arc length and sector area Click for more variations

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10 (a)



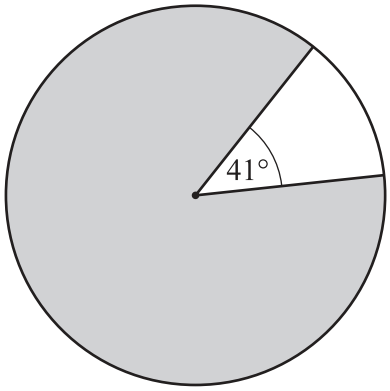
NOT TO SCALE

The diagram shows a shape made from an equilateral triangle ABC and a sector of a circle.
Points B and C lie on the circle, centre A.
The side length of the equilateral triangle is 12.4 cm.

Work out the perimeter of the shape.

..... cm [3]

(b)



NOT TO SCALE

The diagram shows two sectors of a circle.
The major sector is shaded.
The area of the major sector is 74.5 cm^2.

Calculate the radius of the circle.

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..... cm [3]

(a) Arc length and sector area (b) Arc length and sector area Click for more variations