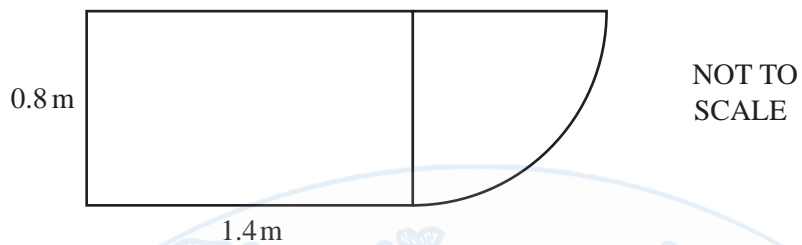




Area and Perimeter

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7



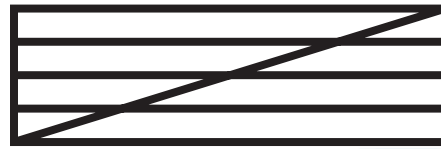
The top of a desk is made from a rectangle and a quarter circle.
The rectangle measures 0.8 m by 1.4 m.

Calculate the surface area of the top of the desk.

Answer m² [3]

www.Q8Maths.com

10



1.5 m

NOT TO
SCALE

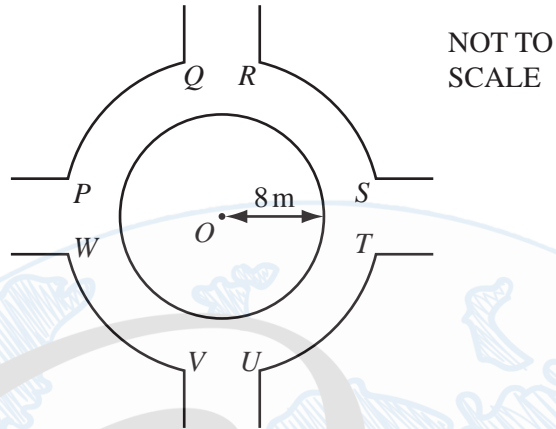
3.5 m

The diagram represents a rectangular gate measuring 1.5m by 3.5m.
It is made from eight lengths of wood.

Calculate the total length of wood needed to make the gate.

Answer m [3]

www.Q8Maths.com

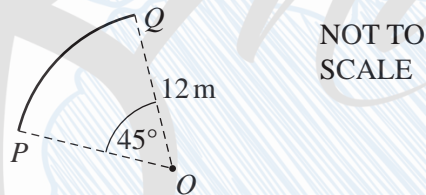


The diagram shows the junction of four paths.
 In the junction there is a circular area covered in grass.
 This circle has centre O and radius 8 m.

(a) Calculate the area of grass.

Answer(a) m² [2]

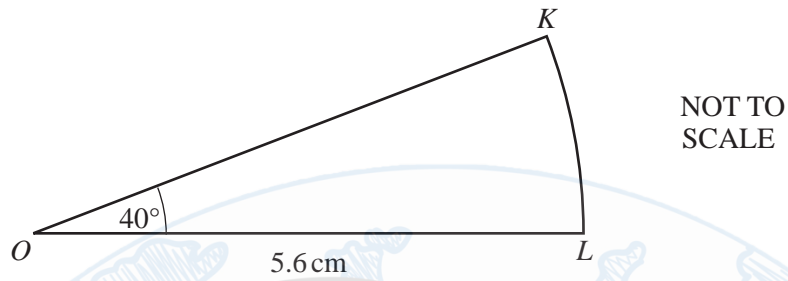
(b)



The arc PQ and the other three identical arcs, RS , TU and VW are each part of a circle, centre O , radius 12m.
 The angle POQ is 45° .
 The arcs PQ , RS , TU , VW and the circumference of the circle in **part(a)** are painted white.
 Calculate the total length painted white.

Answer(b) m [4]

17



OKL is a sector of a circle, centre O , radius 5.6 cm .
Angle $KOL = 40^\circ$.

Calculate

(a) the area of the sector,

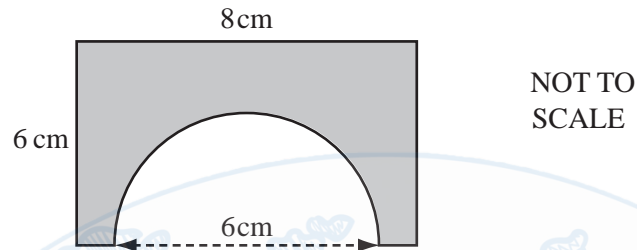
Answer(a) cm^2 [2]

(b) the perimeter of the sector.

Answer(b) cm [2]

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15



A semicircle of diameter 6 cm is cut from a rectangle with sides 6 cm and 8 cm.

Calculate the perimeter of the shaded shape, correct to 1 decimal place.

Answer cm [3]

13



The diagram shows a circle of radius 5 cm in a square of side 18 cm.

Calculate the shaded area.

Answer cm² [3]

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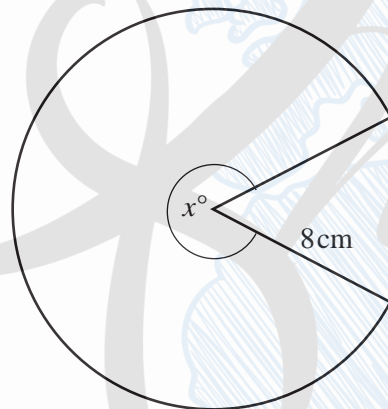
7) November 2010 V3

- 8 A large rectangular card measures 80 centimetres by 90 centimetres. Maria uses **all** this card to make small rectangular cards measuring 40 **millimetres** by 15 **millimetres**. Calculate the number of small cards.

Answer [2]

8) November 2010 V3

18



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]

11 A rectangular photograph measures 23.3 cm by 19.7 cm, each correct to 1 decimal place.
Calculate the lower bound for

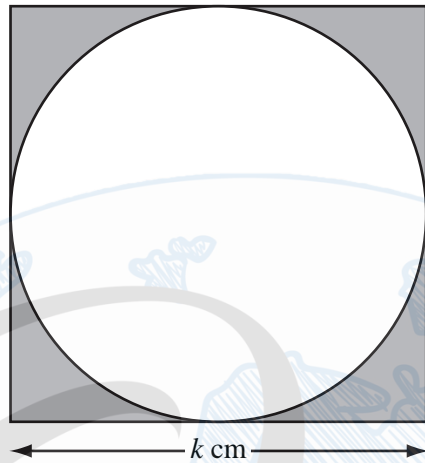
(a) the perimeter,

Answer(a) cm [2]

(b) the area.

Answer(b) cm^2 [1]

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The diagram shows a square of side k cm.

The circle inside the square touches all four sides of the square.

(a) The shaded area is A cm².

Show that $4A = 4k^2 - \pi k^2$.

Answer (a)

[2]

(b) Make k the subject of the formula $4A = 4k^2 - \pi k^2$.

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Answer(b) $k = \dots\dots\dots$ [3]

5 A circle has a radius of 50cm.

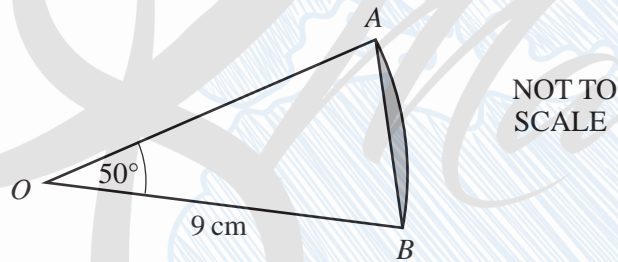
(a) Calculate the area of the circle in cm^2 .

Answer(a) cm^2 [2]

(b) Write your answer to **part (a)** in m^2 .

Answer(b) m^2 [1]

19

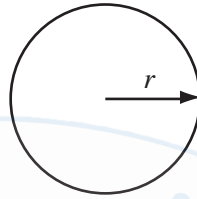
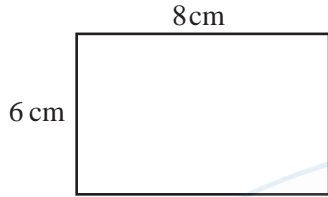


The diagram shows a sector AOB of a circle, centre O , radius 9 cm with angle $AOB = 50^\circ$.

Calculate the area of the segment shaded in the diagram.

Answer cm^2 [4]

7



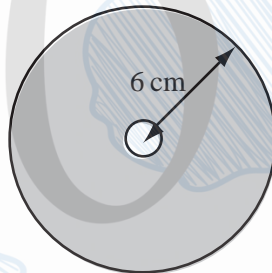
NOT TO SCALE

The perimeter of the rectangle is the same length as the circumference of the circle.

Calculate the radius, r , of the circle.

Answer $r =$ cm [3]

12



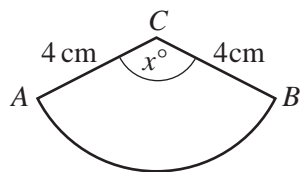
NOT TO SCALE

The diagram shows a circular disc with radius 6 cm.
In the centre of the disc there is a circular hole with radius 0.5 cm.

Calculate the area of the shaded section.

Answer cm² [3]

14

NOT TO
SCALE

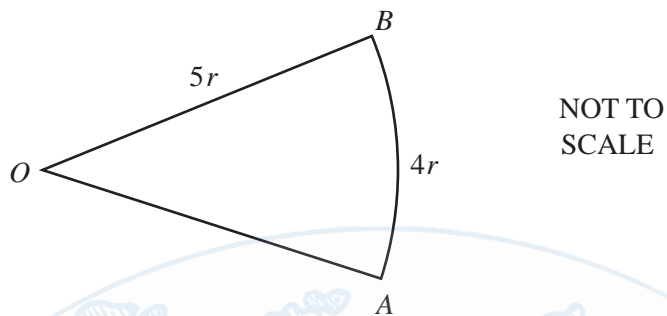
ABC is a sector of a circle, radius 4 cm and centre C
The length of the arc AB is 8 cm and angle $ACB = x^\circ$.

Calculate the value of x .

Answer $x =$ [3]

www.Q8Maths.com

17

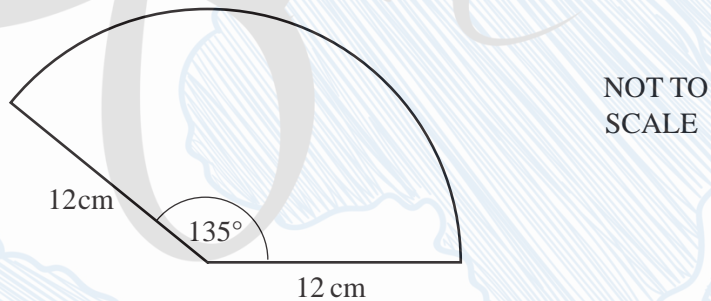


The diagram shows a sector of a circle, centre O , radius $5r$.
The length of the arc AB is $4r$.

Find the area of the sector in terms of r , giving your answer in its simplest form.

Answer [3]

21



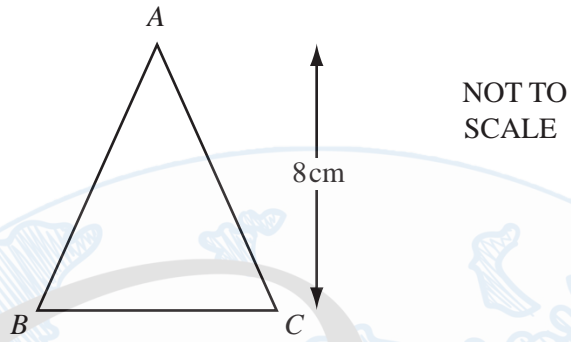
The diagram shows a sector of a circle of radius 12 cm with an angle of 135° .

Calculate the perimeter of the sector.

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Answer cm [3]

5



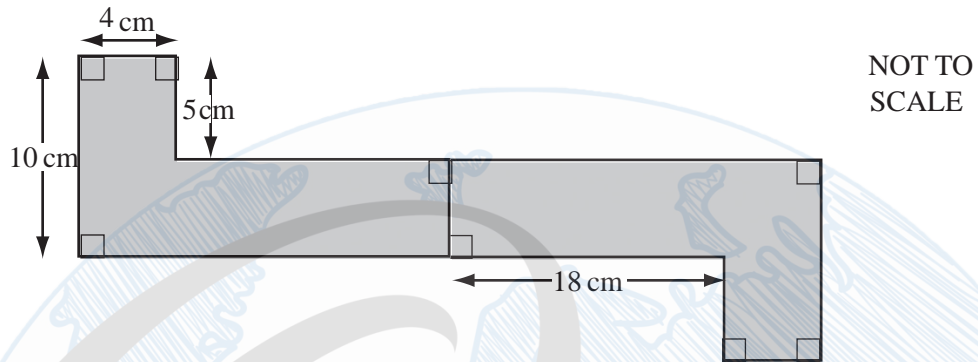
Triangle ABC has a height of 8 cm and an area of 42 cm^2 .

Calculate the length of BC

Answer $BC = \dots\dots\dots$ cm [2]

www.Q8Maths.com

7

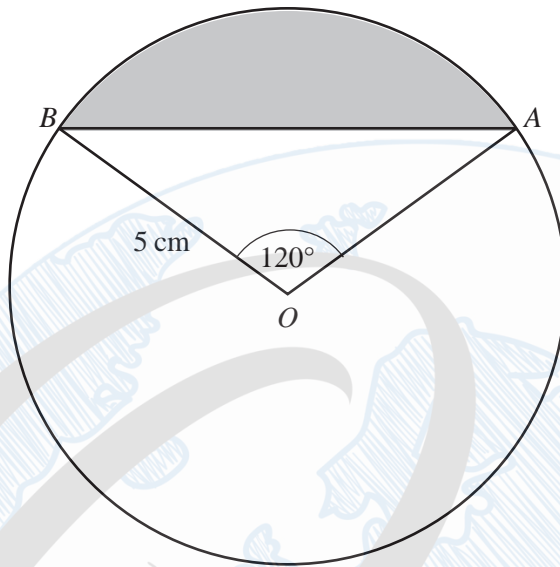


The shaded shape has rotational symmetry of order 2.

Work out the shaded area.

Answer cm² [3]

18



NOT TO
SCALE

A and B lie on a circle centre O , radius 5 cm .
Angle $AOB = 120^\circ$.

Find the area of the shaded segment.

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Answer cm^2 [4]

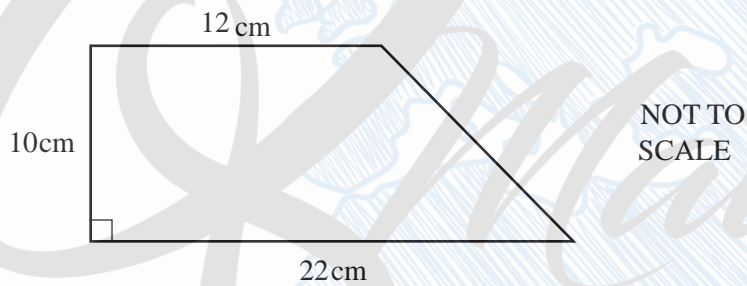
21) November 2013 V2

3 Find the circumference of a circle of radius 2.5cm.

Answer cm [2]

22) November 2013 V2

7

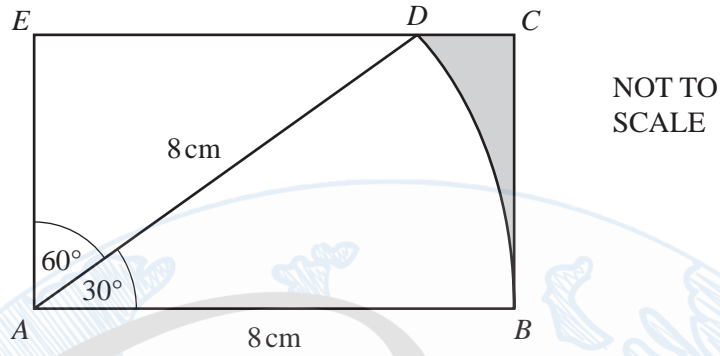


Find the area of the trapezium.

Answer cm² [2]

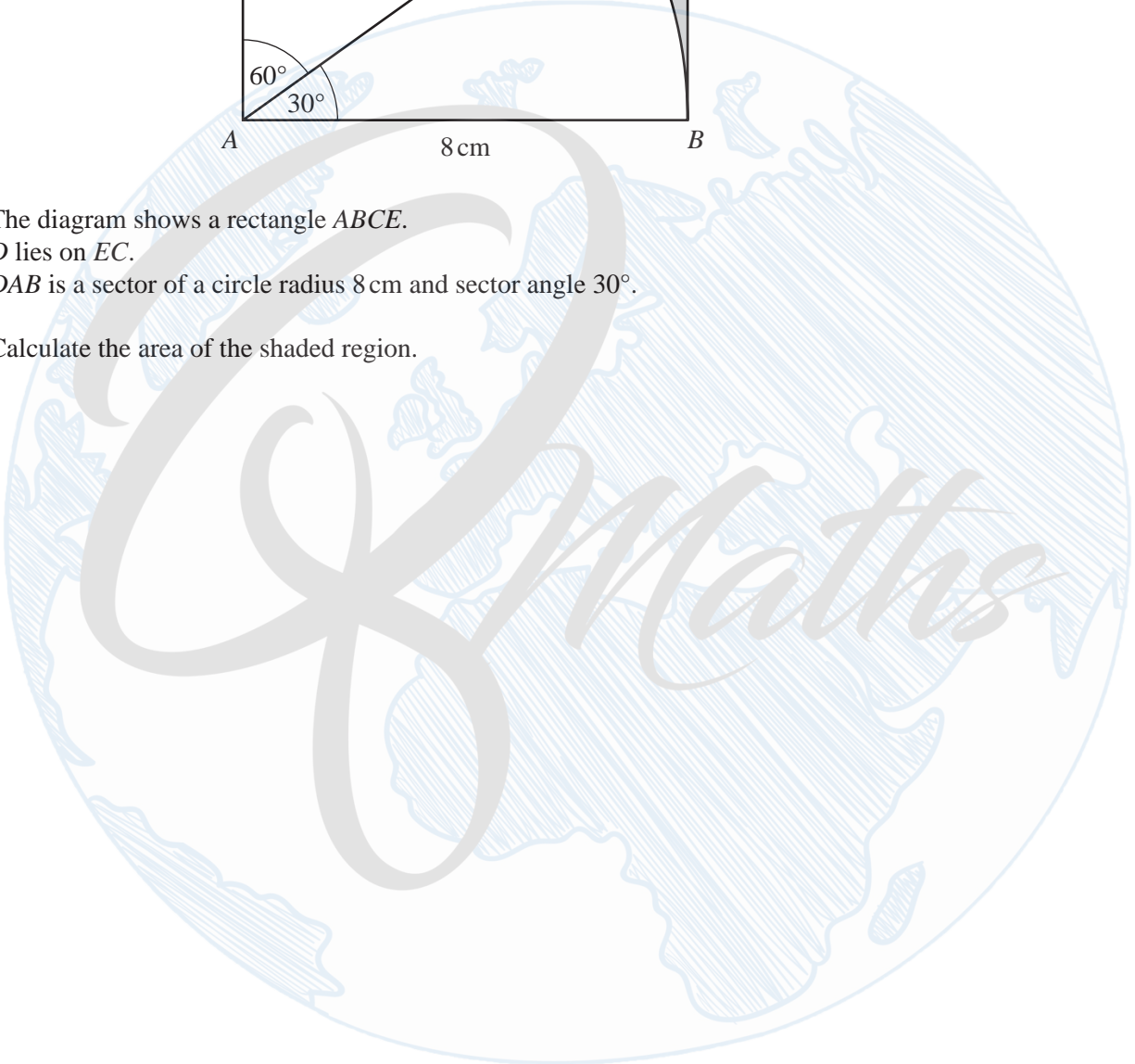
www.Q8Maths.com

19



The diagram shows a rectangle $ABCE$.
 D lies on EC .
 DAB is a sector of a circle radius 8 cm and sector angle 30° .

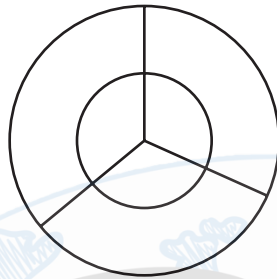
Calculate the area of the shaded region.



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Answer cm^2 [7]

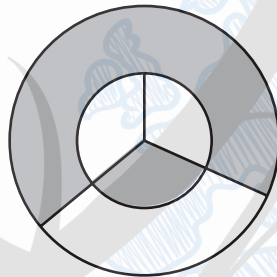
21



NOT TO
SCALE

The diagram shows two concentric circles and three radii.
The diagram has rotational symmetry of order 3.

A club uses the diagram for its badge with some sections shaded.
The radius of the large circle is 6 cm and the radius of the small circle is 4 cm.



NOT TO
SCALE

Calculate the total perimeter of the shaded area.

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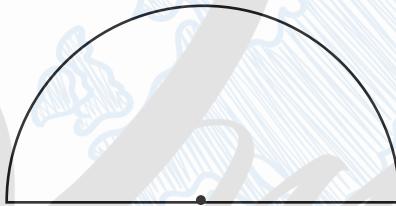
Answer cm [5]

15 The circumference of a circle is 30 cm.

(a) Calculate the radius of the circle.

Answer(a) cm [2]

(b)



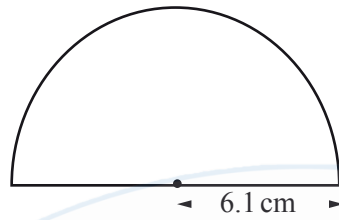
The length of the arc of the semi-circle is 15 cm.

Calculate the area of the semi-circle.

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Answer(b) cm² [2]

11



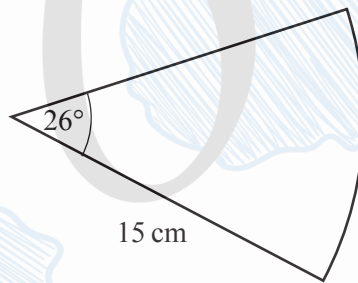
NOT TO SCALE

A protractor is a semi-circle of radius 6.1 cm.

Calculate the **perimeter** of the protractor.

Answer cm [3]

16

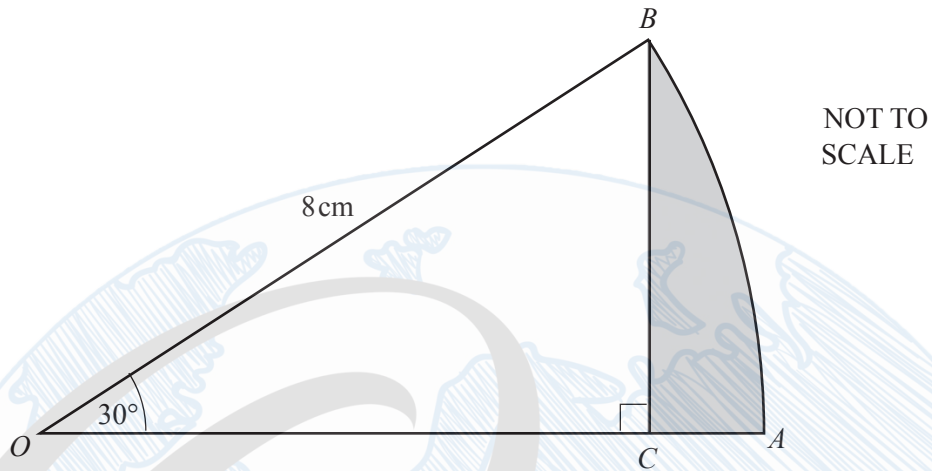


NOT TO SCALE

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

Calculate the perimeter of this sector.

Answer cm [3]

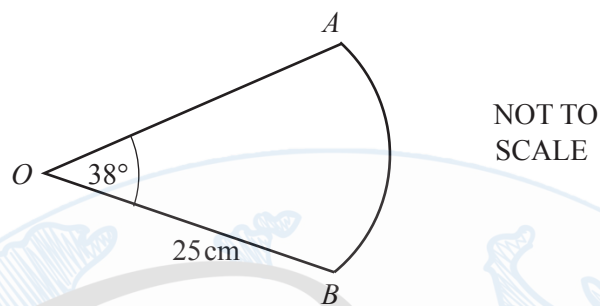


OAB is the sector of a circle, centre O , with radius 8 cm and sector angle 30° .
 BC is perpendicular to OA .

Calculate the area of the region shaded on the diagram.

www.Q8Maths.com Answer cm^2 [5]

11



The diagram shows a sector of a circle, centre O , radius 25 cm .
The sector angle is 38° .

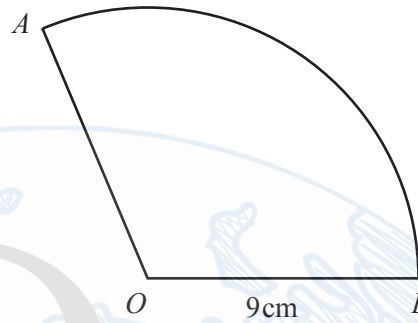
Calculate the length of the arc AB
Give your answer correct to 4 significant figures.

$AB =$ cm [3]

www.Q8Maths.com

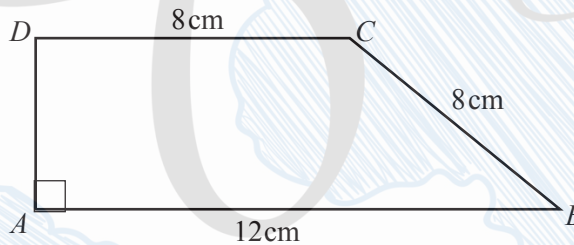
- 20 AB is an arc of a circle, centre O , radius 9cm .
The length of the arc AB is $6\pi\text{cm}$.
The area of the sector AOB is $k\pi\text{cm}^2$.

Find the value of k



NOT TO SCALE

$k = \dots\dots\dots [3]$



NOT TO SCALE

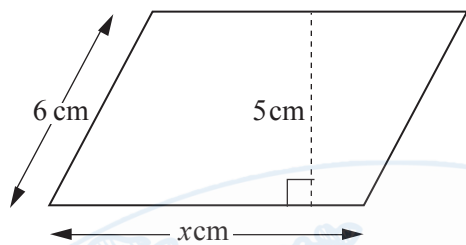
Calculate the area of this trapezium.

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$\dots\dots\dots \text{cm}^2 [4]$

32) June 2016 V2

3



NOT TO SCALE

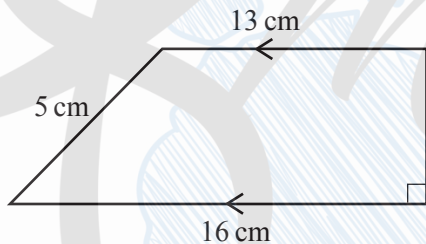
The area of this parallelogram is 51.5 cm^2 .

Work out the value of x .

$x = \dots\dots\dots$ [2]

33) November 2016 V2

4

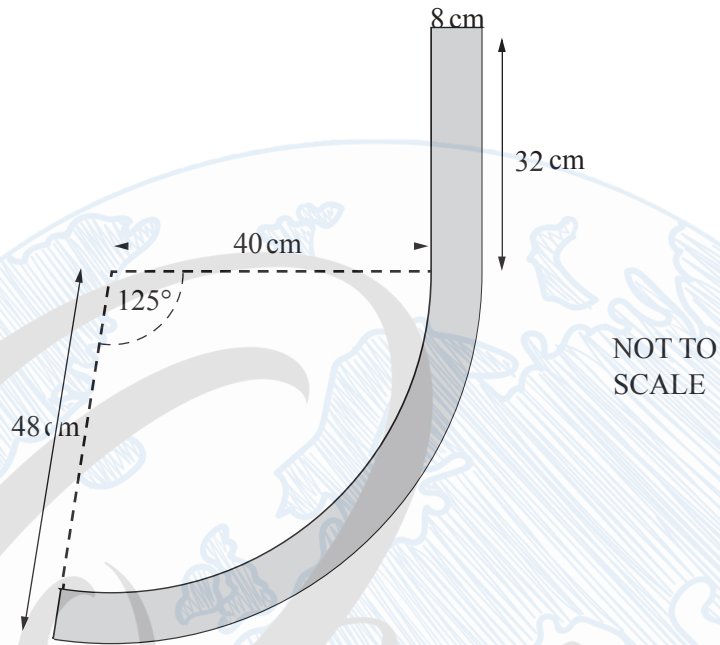


NOT TO SCALE

Calculate the area of this trapezium.

$\dots\dots\dots \text{ cm}^2$ [2]

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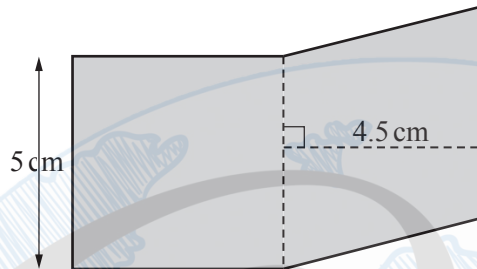
The diagram shows the cross section of part of a park bench.
 It is made from a rectangle of length 32 cm and width 8 cm and a curved section.
 The curved section is made from two concentric arcs with sector angle 125° .
 The inner arc has radius 40 cm and the outer arc has radius 48 cm.

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

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..... cm^2 [5]

14 The shaded shape is made by joining a square and a rhombus.



NOT TO SCALE

Work out

(a) the perimeter of the shaded shape,

..... cm [1]

(b) the area of the shaded shape.

..... cm² [2]

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