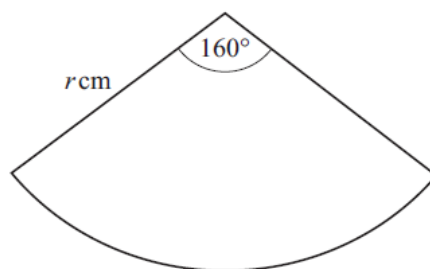
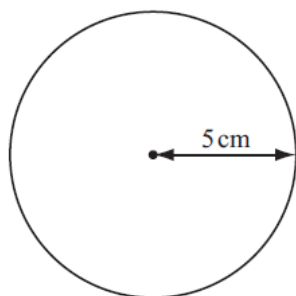




7.3 – Circumference, area of a circle, arc length and area of a sector

Student name: _____ Score: _____

1.



NOT TO
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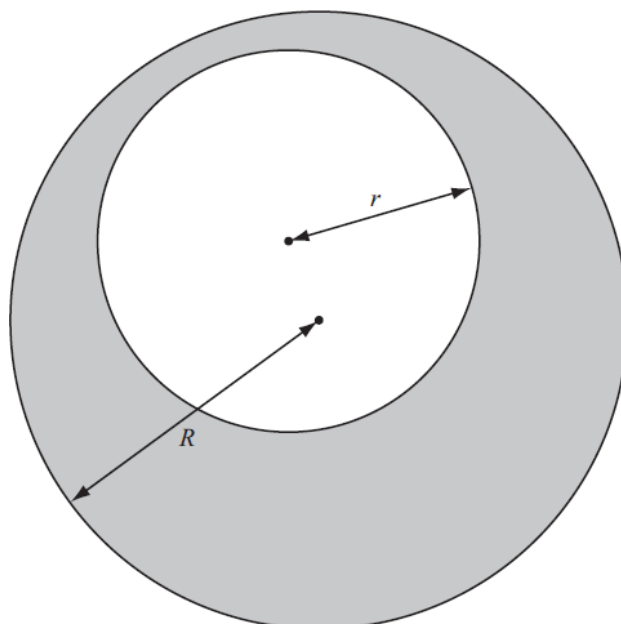
The diagrams show a circle with radius 5 cm and the sector of another circle with angle 160° and radius r cm.

The circle and the sector have the same area.

Calculate the value of r .

Answer $r =$ [4]

2.



NOT TO
SCALE

The diagram shows a circle of radius r inside a circle of radius R .

- (a) Find an expression, in terms of π , r and R , for the shaded area.
Factorise your expression completely.

Answer(a) [2]

- (b) When $R = r + 3$, the shaded area is 24π .

Answer(b) $r =$ [2]

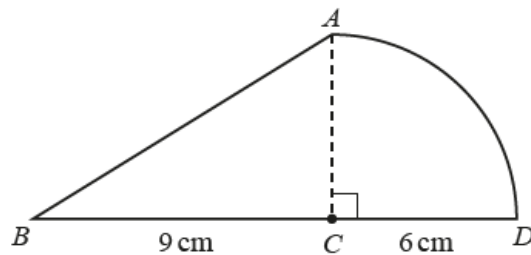
3. The area of a semicircle is $32\pi \text{ cm}^2$.

Work out the perimeter of the semicircle.

Give your answer in terms of π .

..... cm [3]

4.



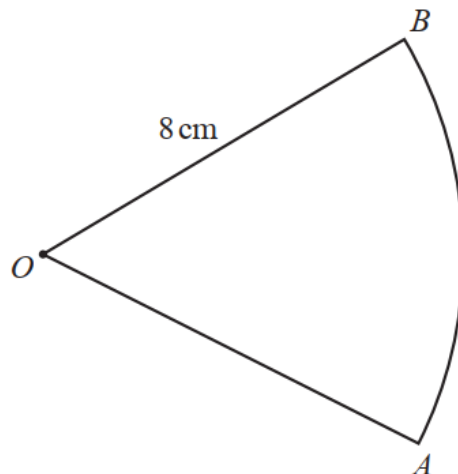
NOT TO
SCALE

AD is an arc of a circle, centre C , and BCD is a straight line.
 $BC = 9$ cm, $CD = 6$ cm and angle $ACD = 90^\circ$.

Find the total area of the shape $ABCD$.
Give your answer in terms of π .

..... cm^2 [3]

5.



NOT TO
SCALE

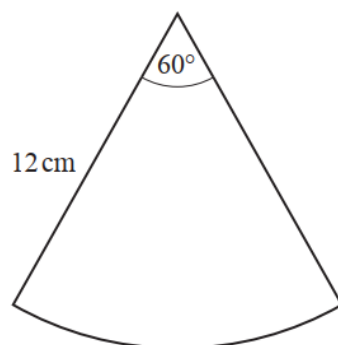
The length of the arc $AB = \frac{4\pi}{3}$ cm.

The area of the sector OAB is $k\pi \text{ cm}^2$.

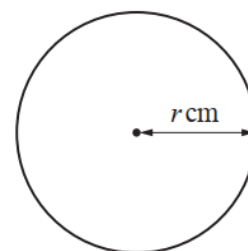
Find the value of k .

$k =$ [3]

6.



NOT TO
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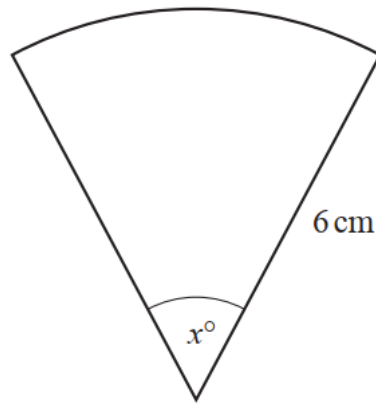


The sector and the circle have the same area.
The angle of the sector is 60° .
The radius of the sector is 12 cm and the radius of the circle is r cm.

Work out the value of r .
Give your answer as a surd in its simplest form.

$r =$ [3]

7.



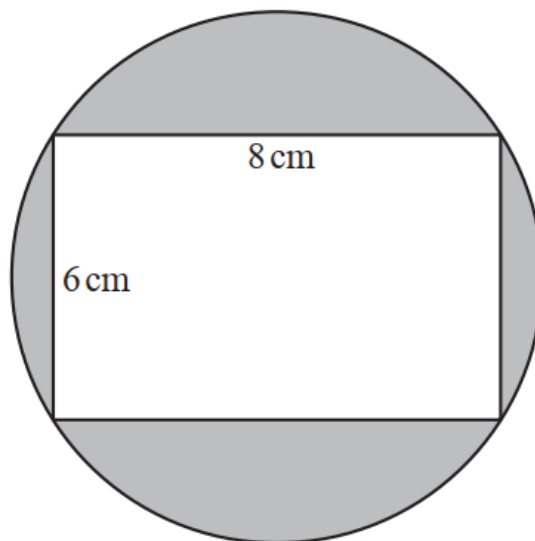
NOT TO
SCALE

The area of this sector is $5\pi \text{ cm}^2$.

Find the value of x .

$x =$ [3]

8.



NOT TO
SCALE

The four vertices of the rectangle each lie on the circle.

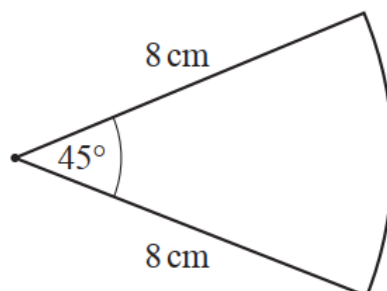
Find the shaded area.

Give your answer, in terms of π , in its simplest form.

..... cm^2 [4]

9. Find the area of the sector.

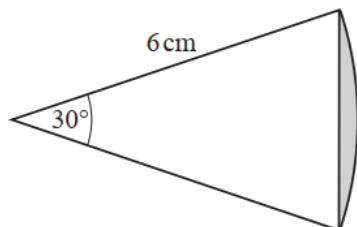
Give your answer, in terms of π , in its simplest form.



NOT TO
SCALE

..... cm^2 [2]

10.



NOT TO
SCALE

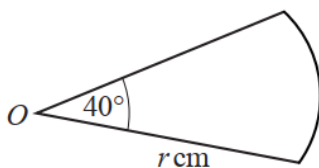
The diagram shows a sector of a circle with radius 6 cm and sector angle 30° .
The area of the shaded segment is $(a\pi - b)\text{cm}^2$.

Find the value of a and the value of b .

$a = \dots\dots\dots$

$b = \dots\dots\dots$ [3]

11.



NOT TO
SCALE

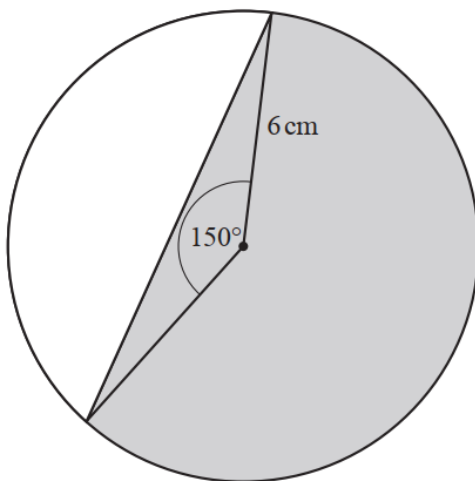
The diagram shows an arc of a circle, centre O , radius r cm.
The length of the arc is $k\pi r$ cm.

Find the value of k .

Give your answer as a fraction in its simplest form.

$k = \dots\dots\dots$ [2]

12.



NOT TO
SCALE

A sector of a circle with radius 6 cm has a sector angle of 150° .

Find the exact value of the area of the shaded region.

Give your answer in its simplest form.

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