

Circle area/circumference

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Worked example

Calculate the area of a circle with radius:

3 cm

6 cm

Your turn

Calculate the area of a circle with radius:

9 cm

$$81\pi = 254.47\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the area of a circle with diameter:

6 cm

12 cm

Your turn

Calculate the area of a circle with diameter:

18 cm

$$81\pi = 254.47\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the area of a circle with:
Radius 6 *cm*

Diameter 6 *cm*

Your turn

Calculate the area of a circle with:
Radius 12 *cm*

$$144\pi = 452.39 \text{ cm}^2 \text{ (2 dp)}$$

Diameter 12 *cm*

$$36\pi = 113.10 \text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the area of a circle with diameter:

2 cm

1 cm

Your turn

Calculate the area of a circle with radius:

3 cm

$$\frac{9}{4}\pi = 7.07\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the radius, given that the area of the circle is:

$$9\pi \text{ cm}^2$$

$$113.0973355 \text{ cm}^2$$

Your turn

Calculate the radius, given that the area of the circle is:

$$254.4690049 \text{ cm}^2$$

$$9 \text{ cm}$$

Worked example

Calculate the diameter, given that the area of the circle is:

$$9\pi \text{ cm}^2$$

$$113.0973355 \text{ cm}^2$$

Your turn

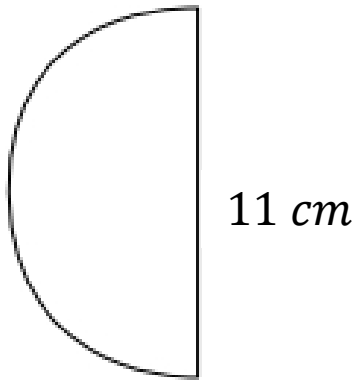
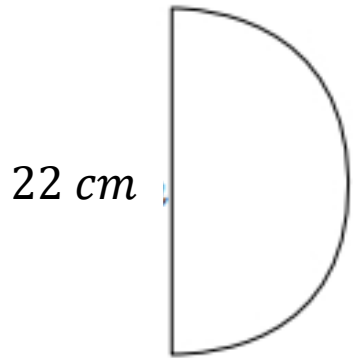
Calculate the radius, given that the area of the circle is:

$$254.4690049 \text{ cm}^2$$

$$18 \text{ cm}$$

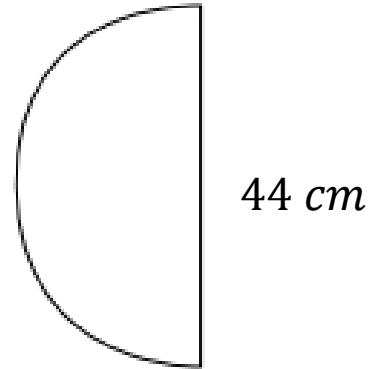
Worked example

Calculate the area of the sector:



Your turn

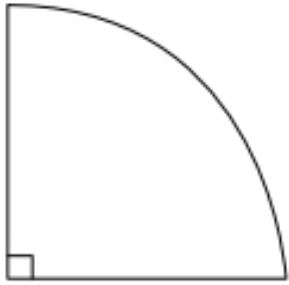
Calculate the area of the sector:



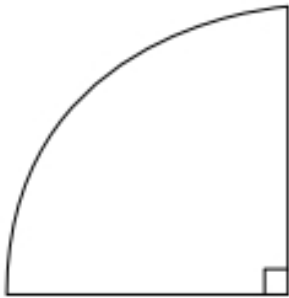
$$242\pi = 760.27\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the area of the sector:



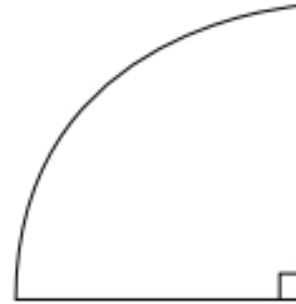
34 cm



68 cm

Your turn

Calculate the area of the sector:

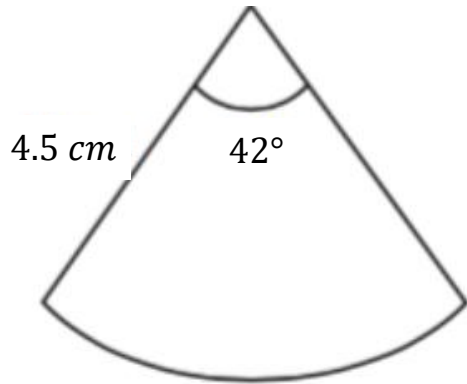
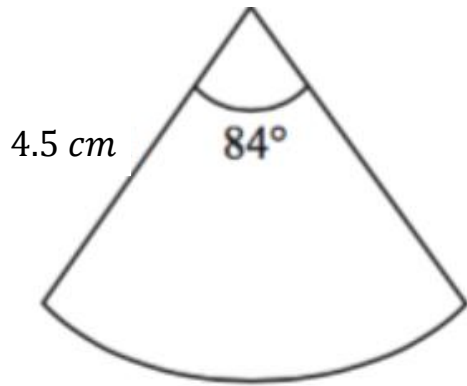


17 cm

$$\frac{289}{4}\pi = 226.98 \text{ cm}^2 \text{ (2 dp)}$$

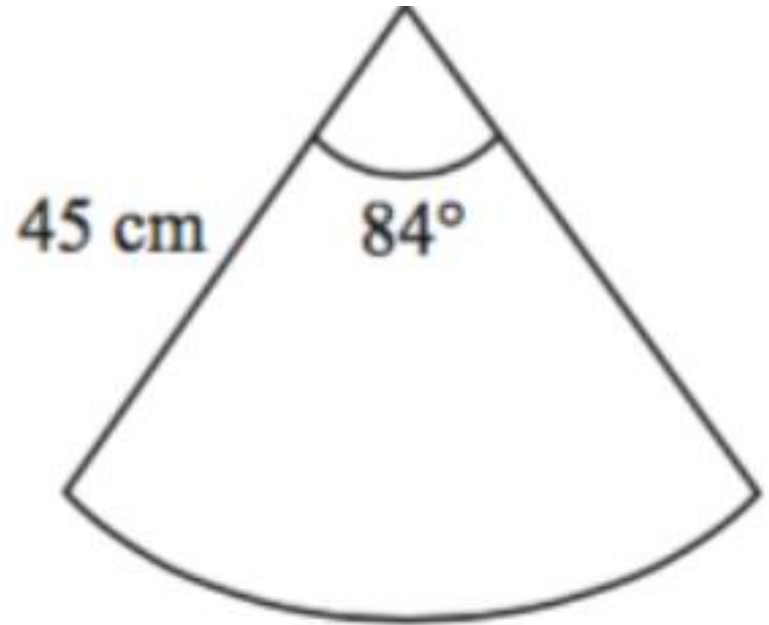
Worked example

Calculate the area of the sector:



Your turn

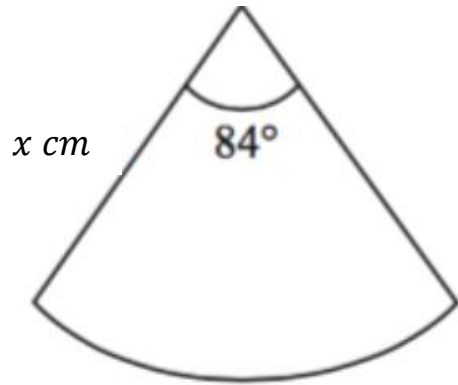
Calculate the area of the sector:



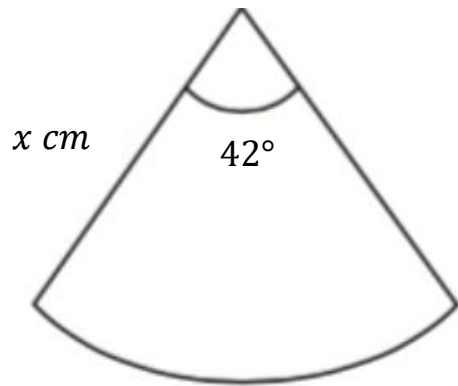
$$\frac{945}{2}\pi = 1484.40 \text{ cm}^2 \text{ (2 dp)}$$

Worked example

The area of the sector is 14.844 cm^2 . Find x

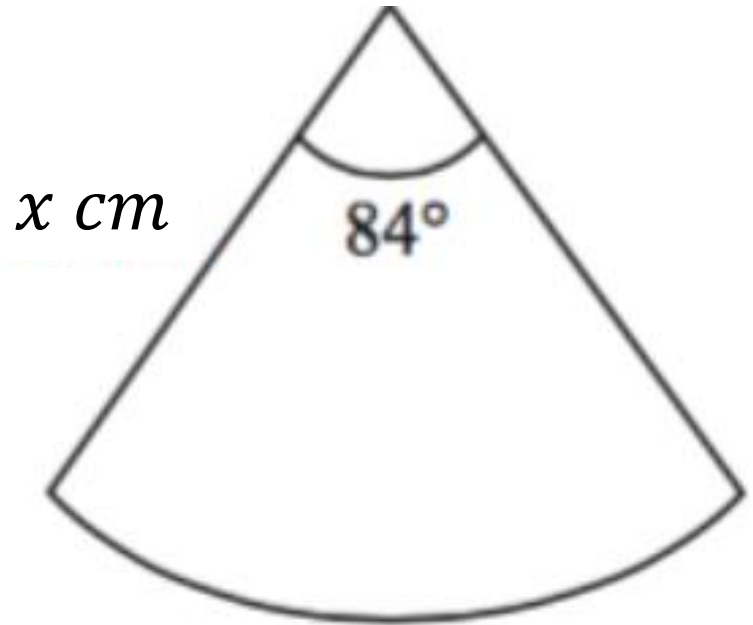


The area of the sector is 7.422 cm^2 . Find x



Your turn

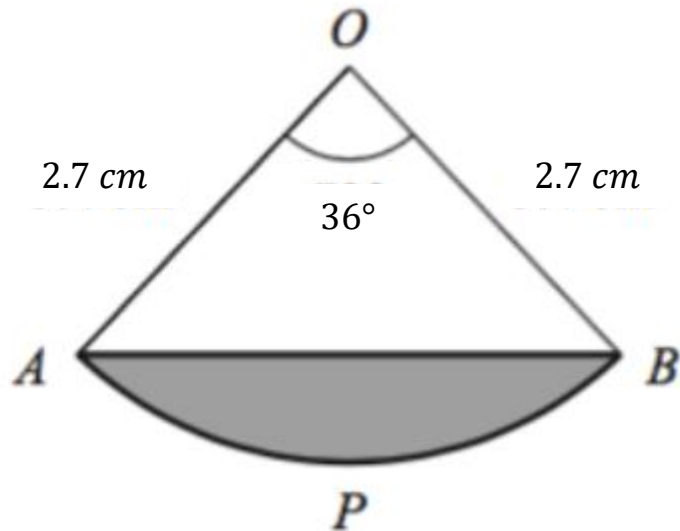
The area of the sector is 1484.402529 cm^2 . Find x



$$x = 45$$

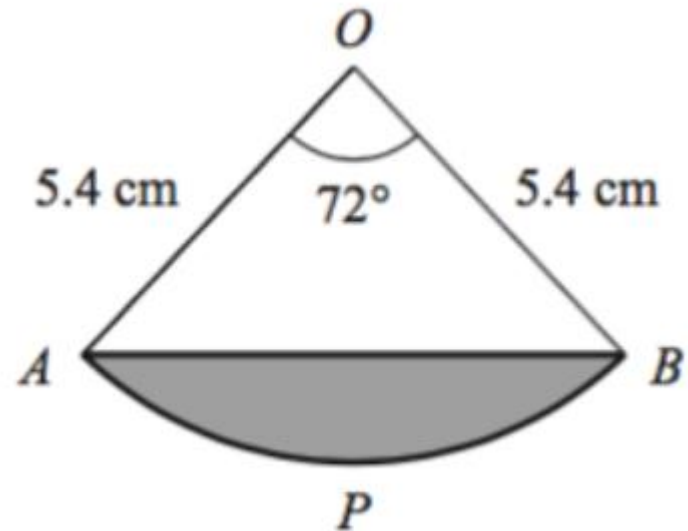
Worked example

Calculate the area of the shaded segment APB



Your turn

Calculate the area of the shaded segment APB



$$4.46\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the circumference of a circle with radius:

3 cm

6 cm

Your turn

Calculate the circumference of a circle with radius:

9 cm

$$18\pi = 56.55 \text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the circumference of a circle with diameter:

6 cm

12 cm

Your turn

Calculate the circumference of a circle with diameter:

18 cm

$$18\pi = 56.55\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the circumference of a circle with:

Radius 6 *cm*

Diameter 6 *cm*

Your turn

Calculate the circumference of a circle with:

Radius 12 *cm*

$$24\pi = 75.40 \text{ cm}^2 \text{ (2 dp)}$$

Diameter 12 *cm*

$$12\pi = 37.70 \text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the circumference of a circle with diameter:

2 cm

1 cm

Your turn

Calculate the circumference of a circle with radius:

3 cm

$$6\pi = 18.85\text{ cm}^2 \text{ (2 dp)}$$

Worked example

Calculate the radius, given that the circumference of the circle is:

$$9\pi \text{ cm}$$

$$37.69911184 \text{ cm}$$

Your turn

Calculate the radius, given that the circumference of the circle is:

$$56.54866776 \text{ cm}$$

$$9 \text{ cm}$$

Worked example

Calculate the diameter, given that the circumference of the circle is:

$$9\pi \text{ cm}$$

$$37.69911184 \text{ cm}$$

Your turn

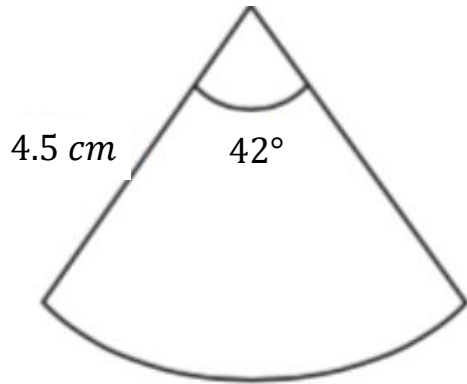
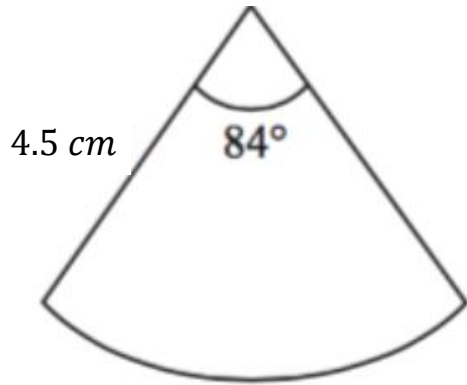
Calculate the diameter, given that the circumference of the circle is:

$$56.54866776 \text{ cm}$$

$$18 \text{ cm}$$

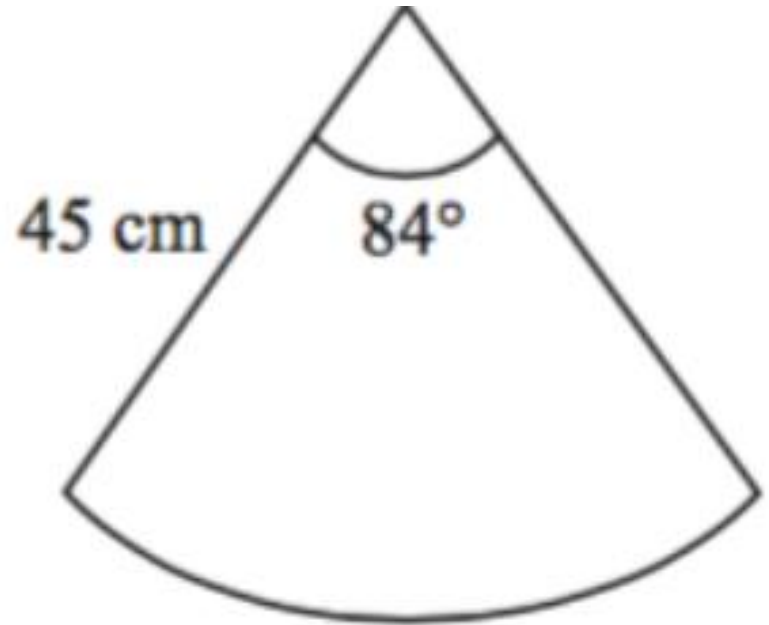
Worked example

Calculate the arc length of the sector:



Your turn

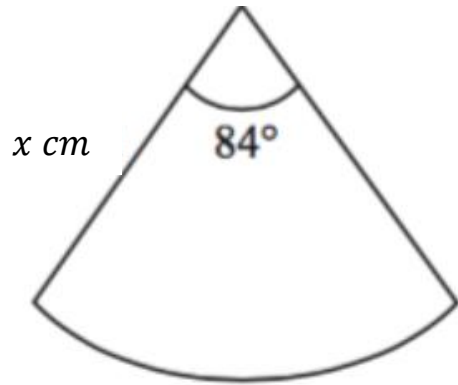
Calculate the arc length of the sector:



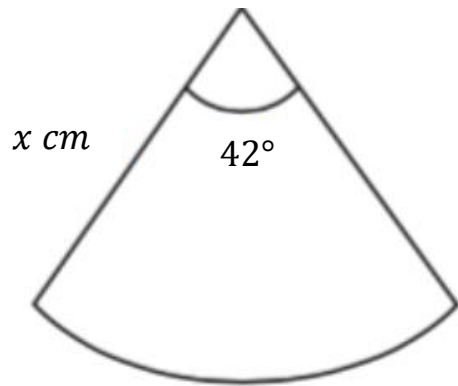
$$21\pi = 65.97 \text{ cm (2 dp)}$$

Worked example

The sector arc length is 6.59734 cm . Find x

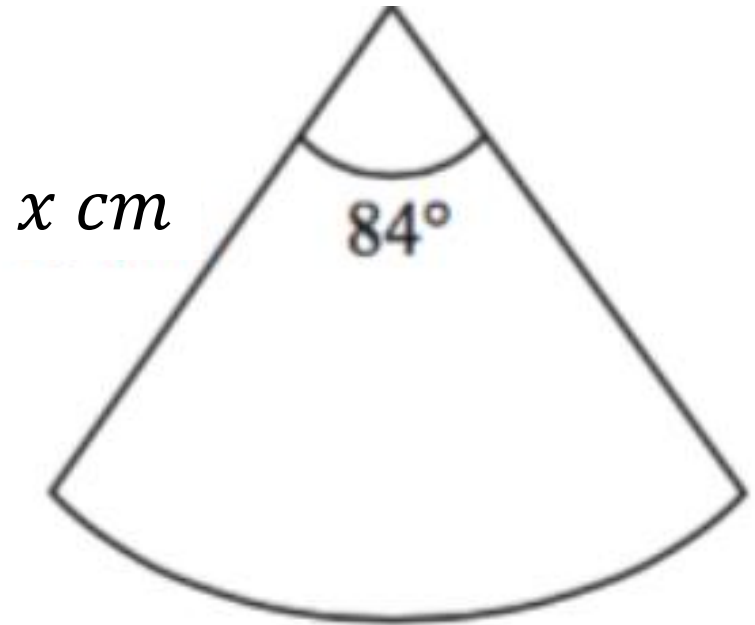


The sector arc length is 3.29867 cm . Find x



Your turn

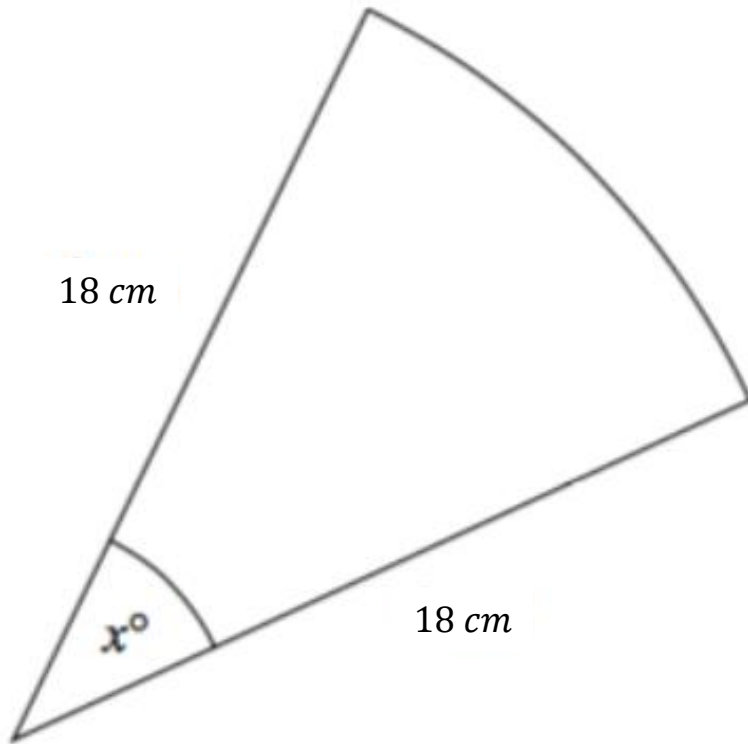
The sector arc length is 65.97345 cm . Find x



$$x = 45$$

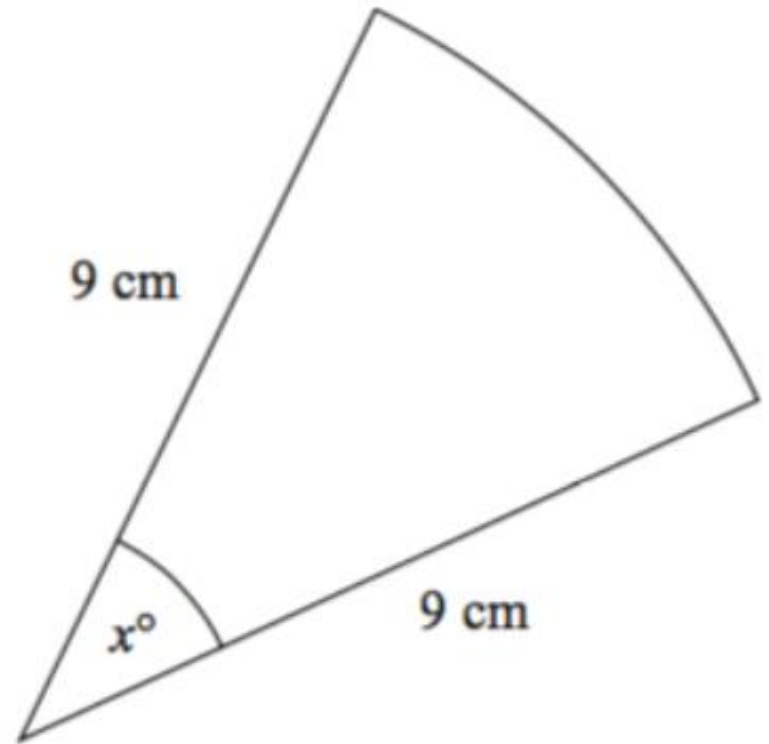
Worked example

The perimeter of the sector is 50 *cm*. Find x



Your turn

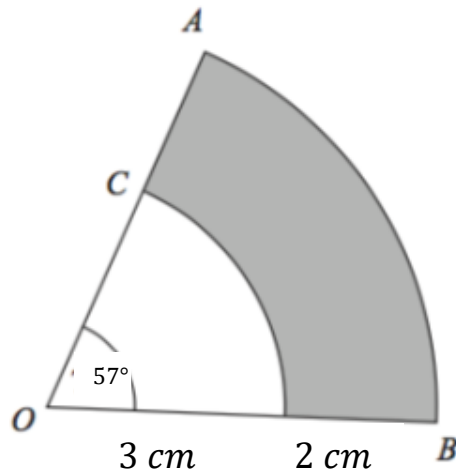
The perimeter of the sector is 25 *cm*. Find x



$$x = 44.56 \text{ (2 dp)}$$

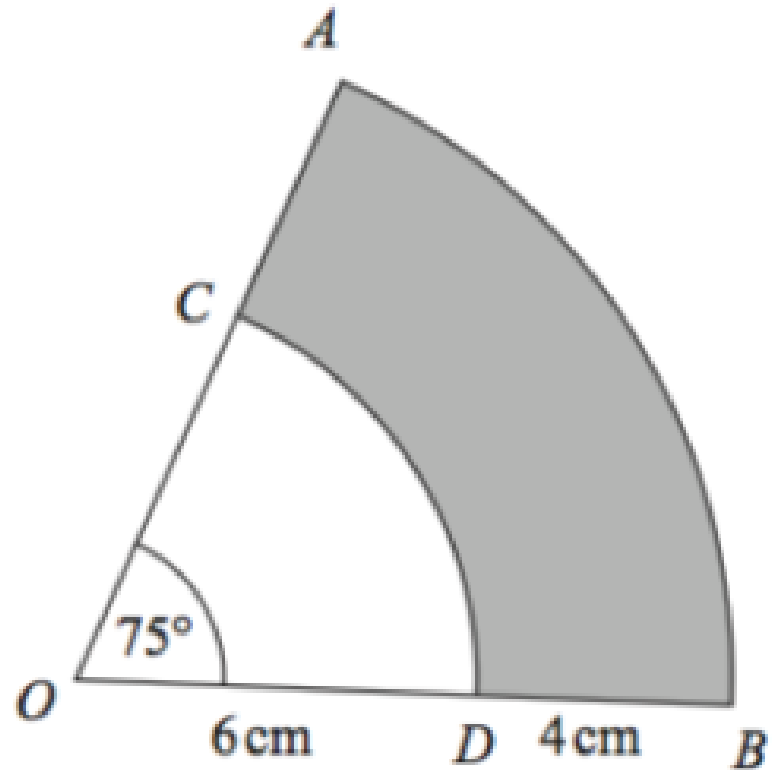
Worked example

Calculate the perimeter of the shaded region



Your turn

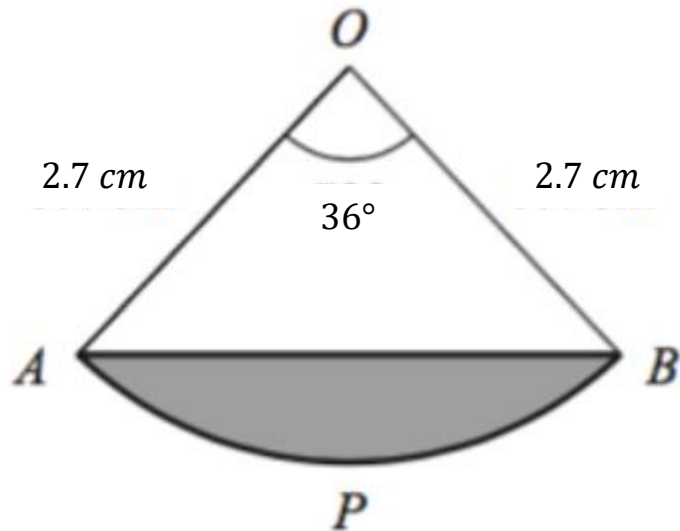
Calculate the perimeter of the shaded region



28.94 cm (2 dp)

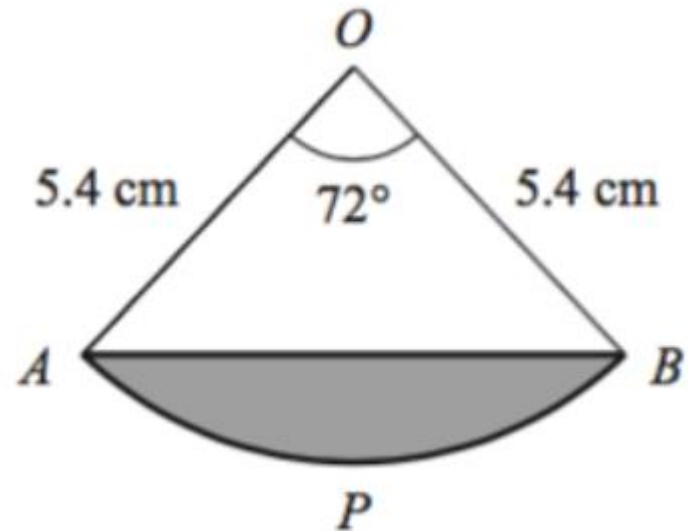
Worked example

Calculate the perimeter of the shaded segment APB



Your turn

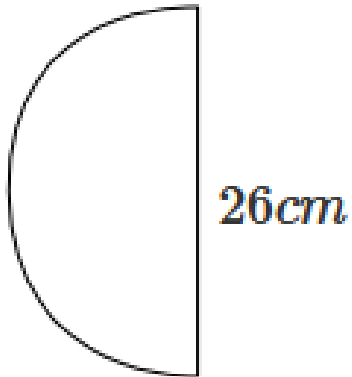
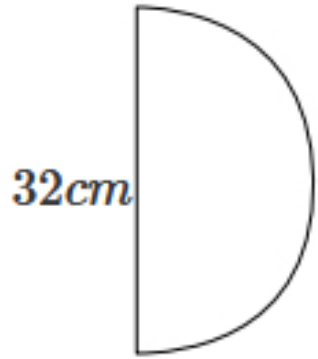
Calculate the perimeter of the shaded segment APB



13.13 cm (2 dp)

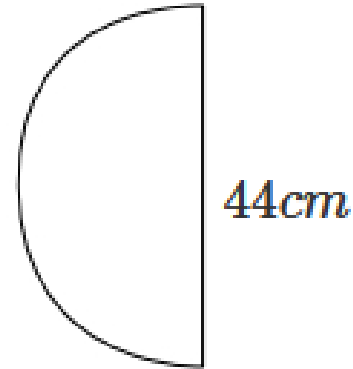
Worked example

Calculate the perimeter of the sector:



Your turn

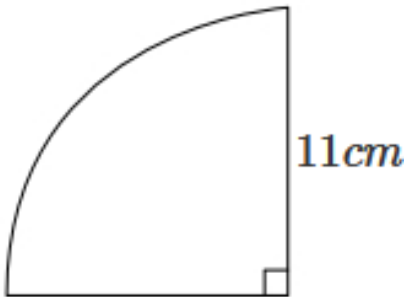
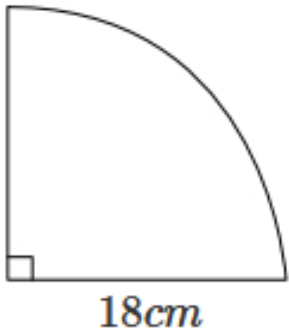
Calculate the perimeter of the sector:



$$22\pi + 44 = 113.12 \text{ cm (2 dp)}$$

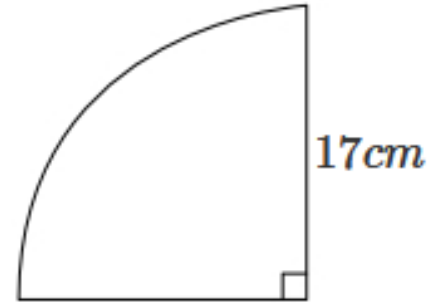
Worked example

Calculate the perimeter of the sector:



Your turn

Calculate the perimeter of the sector:



$$\frac{17}{2}\pi + 34 = 60.70 \text{ cm (2 dp)}$$

Worked example

Calculate the area and circumference of a circle with radius:

3 cm

6 cm

Your turn

Calculate the area and circumference of a circle with radius:

9 cm

Area = $81\pi = 254.47 \text{ cm}^2$ (2 dp)
Circumference = $18\pi = 56.55 \text{ cm}$ (2 dp)

Worked example

What is the circumference of a circle, given that its area is:

$$9\pi \text{ cm}^2$$

$$113.0973355 \text{ cm}^2$$

Your turn

What is the circumference of a circle, given that its area is:

$$81\pi = 254.4690049 \text{ cm}^2$$

$$18\pi = 54.55 \text{ cm (2 dp)}$$

Worked example

What is the area of a circle, given that its circumference is:

$$6\pi \text{ cm}$$

$$37.69911184 \text{ cm}$$

Your turn

What is the area of a circle, given that its circumference is:

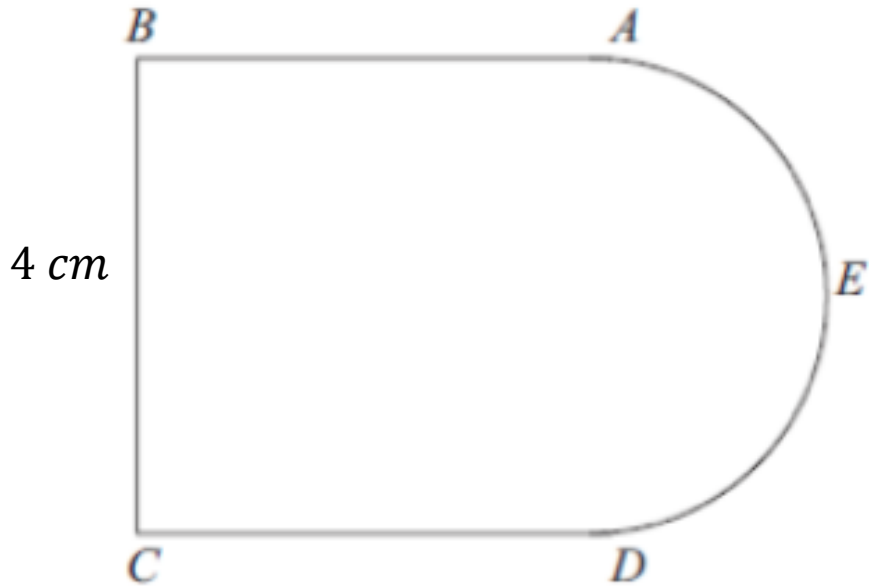
$$18\pi = 54.54866776 \text{ cm}$$

$$81\pi = 254.4690049 \text{ cm}^2$$

Worked example

AB, BC and CD are three sides of a square.

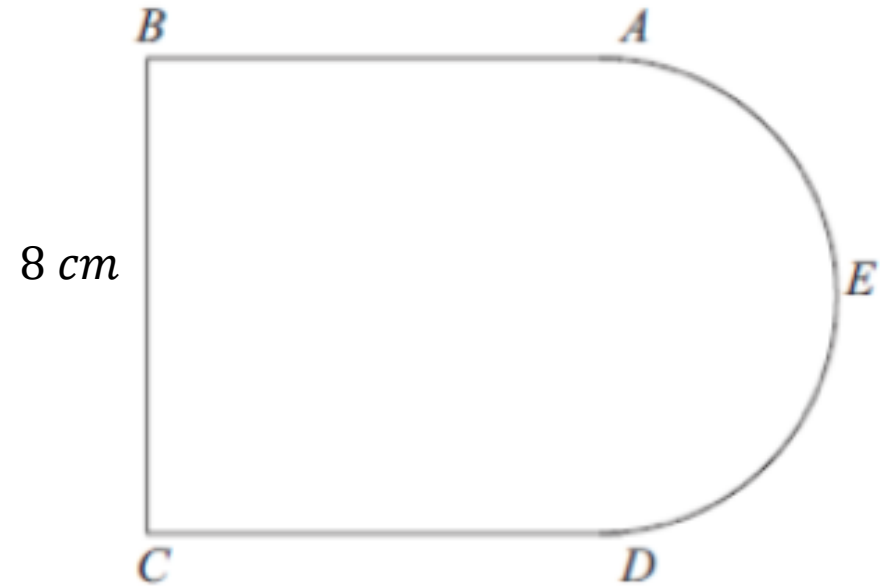
Calculate the area of ABCDEA



Your turn

AB, BC and CD are three sides of a square.

Calculate the area of ABCDEA

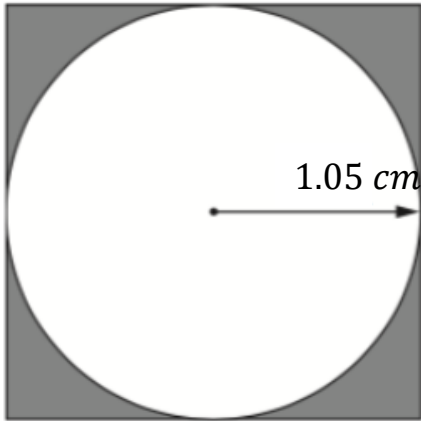


$$8\pi + 64 = 89.13 \text{ cm}^2 \text{ (2 dp)}$$

Worked example

The circle, of radius 1.05 cm , is inside a square.

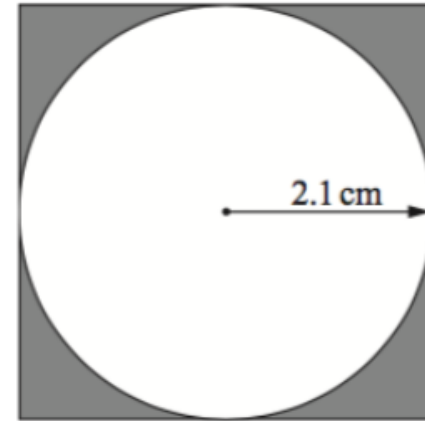
Work out the shaded area



Your turn

The circle, of radius 2.1 cm , is inside a square.

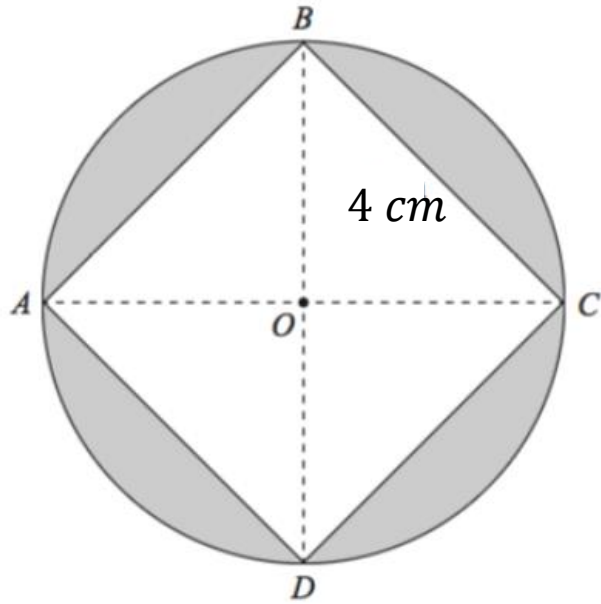
Work out the shaded area



3.79 cm^2

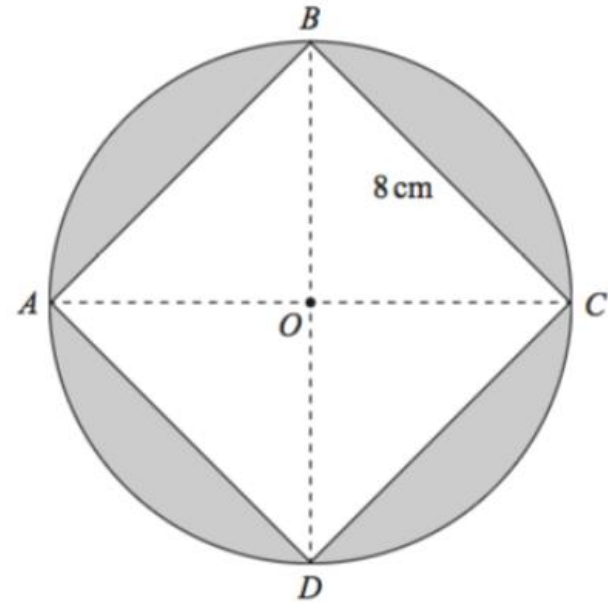
Worked example

ABCD is a square inside a circle.
Work out the total area of the
four shaded segments



Your turn

ABCD is a square inside a circle.
Work out the total area of the
four shaded segments



$$36.5 - 36.6\text{ cm}^2$$