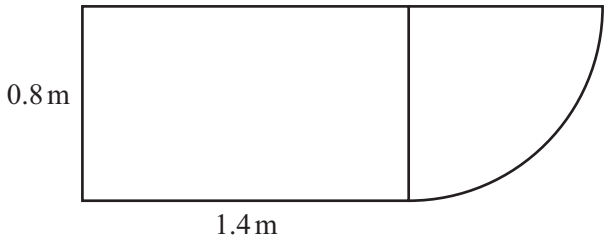
Mensuration P2

1)



NOT TO SCALE

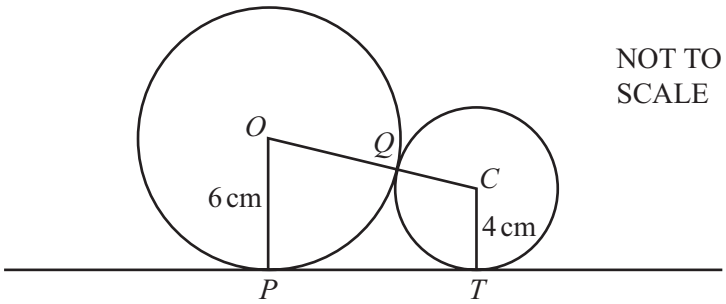
The top of a desk is made from a rectangle and a quarter circle.
The rectangle measures 0.8m by 1.4m.

Calculate the surface area of the top of the desk. *Answer* m^2 [3]

2) Change 64 square metres into square millimetres.
Give your answer in standard form.

Answer mm^2 [2]

3)



NOT TO SCALE

Two circles, centres *O* and *C*, of radius 6 cm and 4 cm respectively, touch at *Q*.
PT is a tangent to both circles.

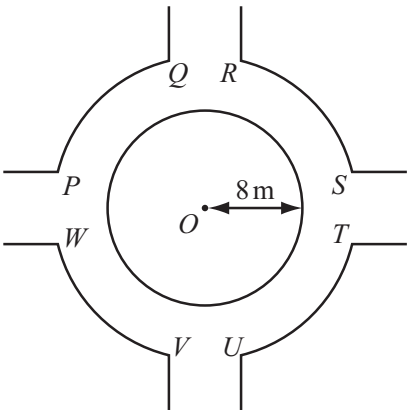
(a) Write down the distance *OC*.

Answer(a) OC = cm [1]

(b) Calculate the distance *PT*.

Answer(b) PT = cm [3]

4)



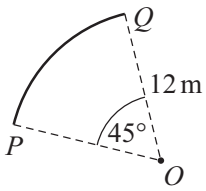
NOT TO SCALE

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) m^2 [2]

(b)

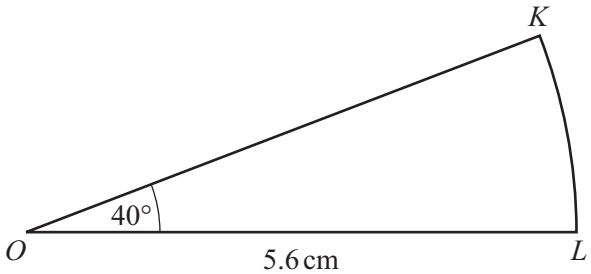


NOT TO SCALE

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]

5)



NOT TO SCALE

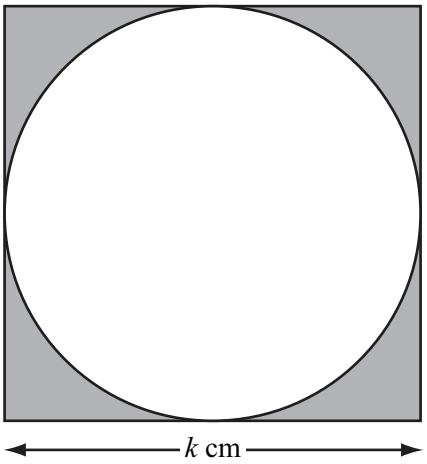
OKL is a sector of a circle, centre O, radius 5.6 cm.
Angle $KOL = 40°$.

Calculate

(a) the area of the sector, *Answer(a)* . cm^2 [2]

(b) the perimeter of the sector. *Answer(b)* . cm [2]

6)



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 cm^2.

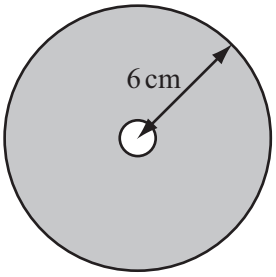
Show that $4A = 4k^2 - \pi k^2$.

Answer (a) [2]

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

Answer(b) $k =$ [3]

7)



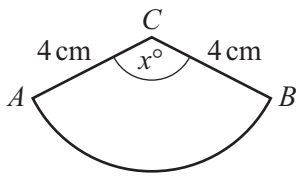
NOT TO SCALE

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 cm^2 [3]

8)



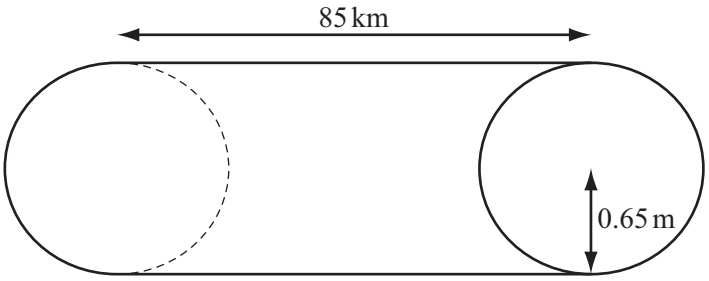
NOT TO SCALE

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

Calculate the value of x.

Answer $x =$ [3]

9)



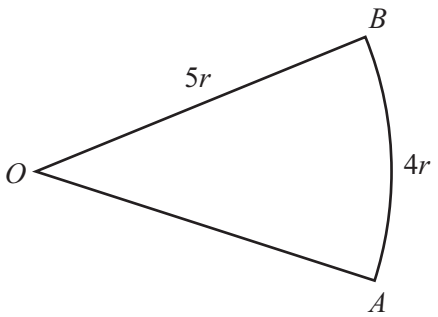
NOT TO SCALE

A water pipeline in Australia is a cylinder with **radius** 0.65 **metres** and length 85 **kilometres**.

Calculate the volume of water the pipeline contains when it is full.
Give your answer in cubic metres.

Answer m^3 [3]

10



NOT TO SCALE

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]