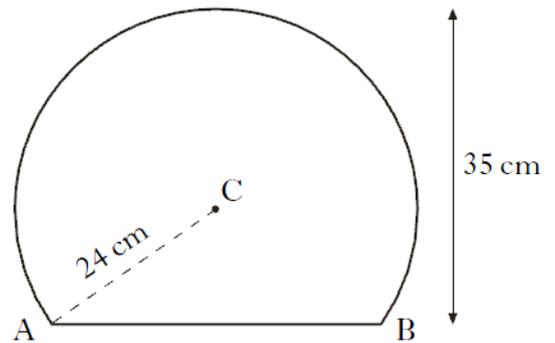


## Circles - Chords Past Paper Questions

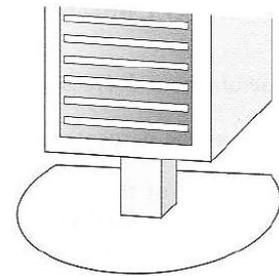
- 1) A mirror is shaped like part of a circle.

The radius of the circle, centre  $C$ , is 24cm.  
The height of the mirror is 35cm.

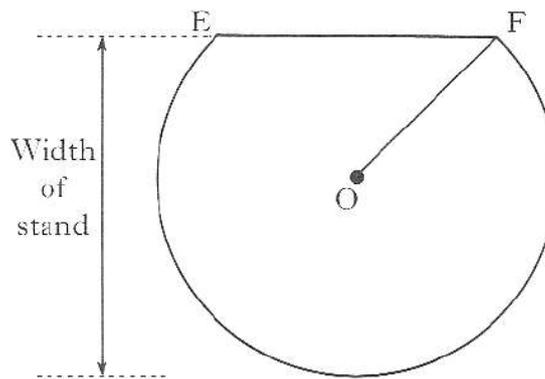


Calculate the length of the base of the mirror, represented in the diagram by  $AB$ . 3

- 2) The diagram shows the base of a compact disc stand which has the shape of part of a circle.



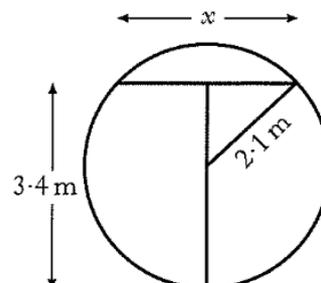
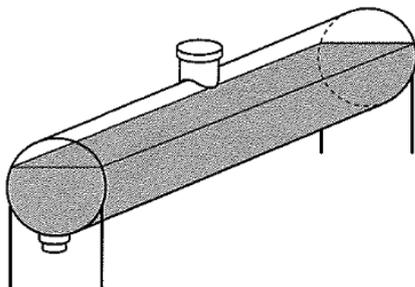
- The centre of the circle is  $O$ .
- $EF$  is a chord of the circle.
- $EF$  is 18 cm.
- The radius,  $OF$ , of the circle is 15 cm.



Find the width of the stand.

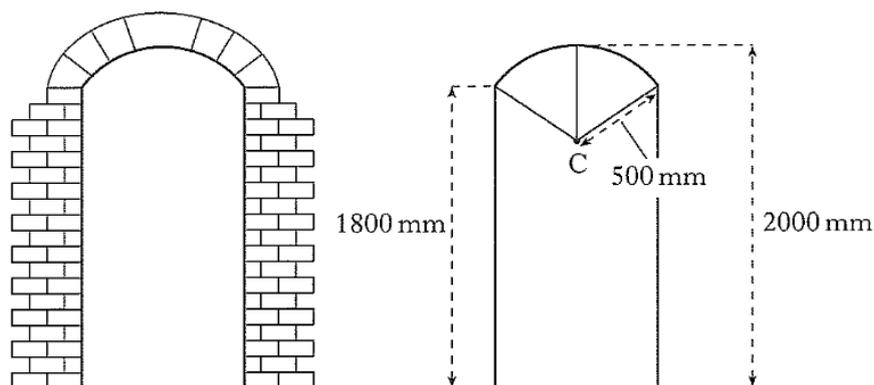
4

- 3) An oil tank has a circular cross-section of radius 2.1m.  
It is filled to a depth of 3.4m.



- a) Calculate  $x$ , the width in metres of the oil surface. 3
- b) What other depth of oil would give the same surface width? 1

- 4) The curved part of a doorway is an arc of a circle with radius 500mm and centre C. The height of the doorway to the top of the arc is 2000mm. The vertical edge of the doorway is 1800mm.



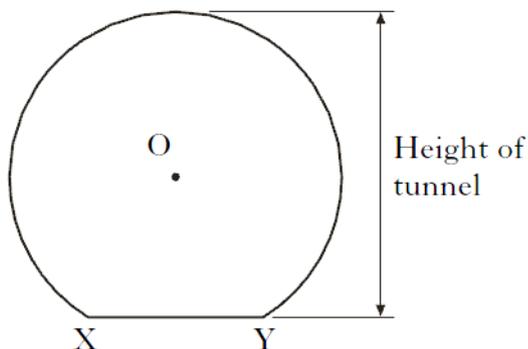
Calculate the width of the doorway.

5

- 5) A railway goes through an underground tunnel. The diagram below shows the cross-section of the tunnel. It consists of part of a circle with a horizontal base.



- The centre of the circle is O.
- XY is a chord of the circle.
- XY is 1.8m.
- The radius of the circle is 1.7 m.



Find the height of the tunnel.

4

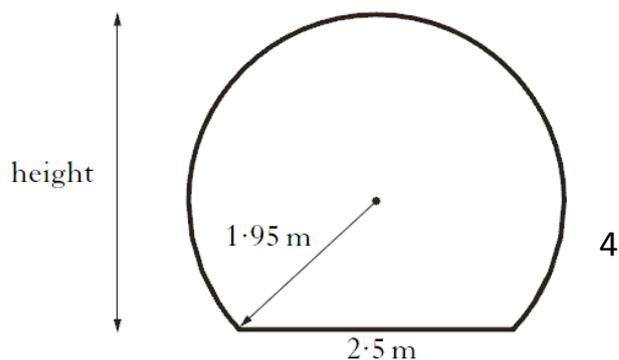
- 6) Ocean world has an underwater viewing tunnel.

The diagram shows the cross-section of the tunnel. It consists of part of a circle with a horizontal base.



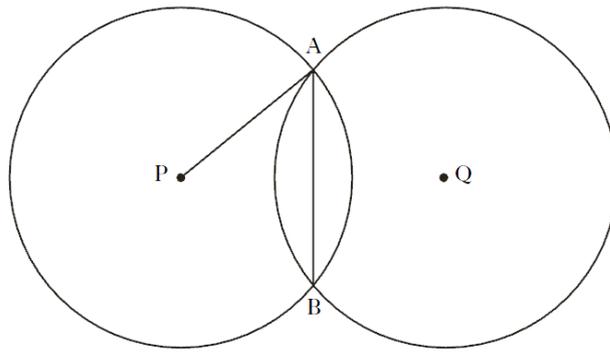
The radius of the circle is 1.95m and the width of the base is 2.5m.

Calculate the height of the tunnel.



4

- 7) Two identical circles, with centres P and Q, intersect at A and B as shown in the diagram.



The radius of each circle is 10cm.

The length of the common chord, AB, is 12cm.

Calculate the distance between the centres of the 2 circles.

5

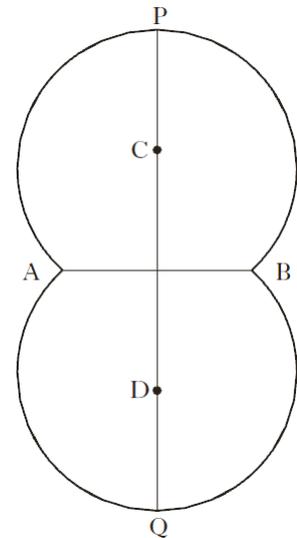
- 8) The shape opposite is used as a logo in an advertising campaign.

It is made up from segments of two identical circles.

The points C and D are the centres of the circles

and each circle has a radius of 24cm.

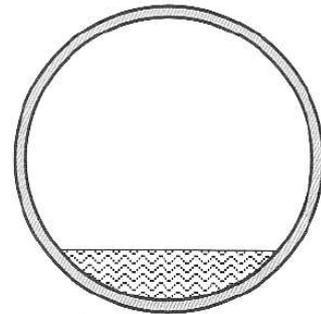
AB is a common chord of length 30cm.



Calculate the height of the logo, represented by the line PQ.

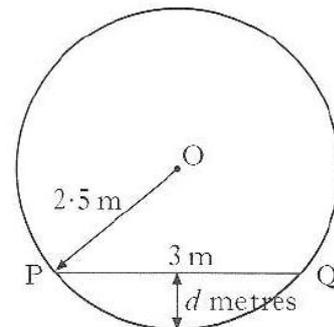
5

- 9) The diagram opposite shows a circular cross-section of a cylindrical oil tank.



In the figure opposite

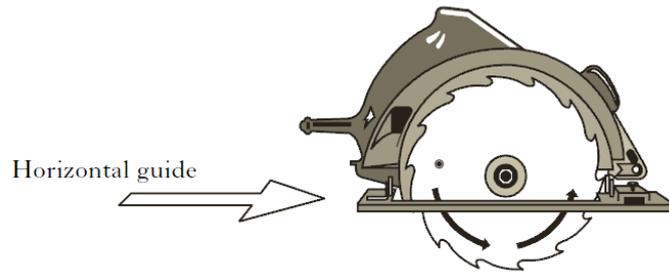
- O represents the centre of the circle
- PQ represents the surface of the oil in the tank
- PQ is 3 metres
- the radius OP is 2.5 metres.



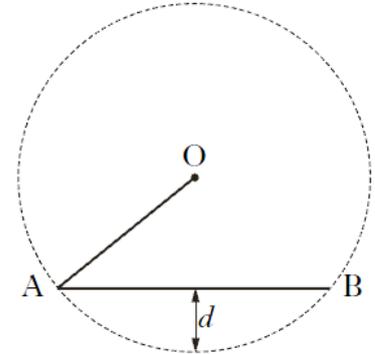
Find the depth,  $d$  metres, of oil in the tank.

4

- 10) A circular saw can be adjusted to change the depth of blade that is exposed below the horizontal guide.



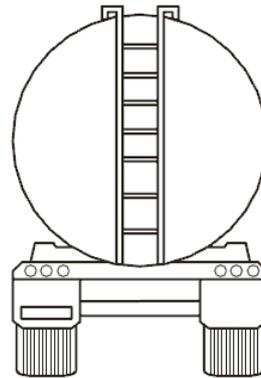
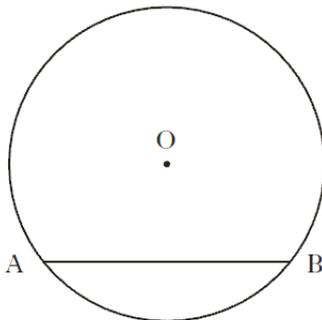
The circle, centre  $O$ , represents the blade and the line  $AB$  represents part of the horizontal guide.  
The blade has a radius of 110mm.



If  $AB$  has length 140mm, calculate the depth,  $d$  mm, of saw exposed.

4

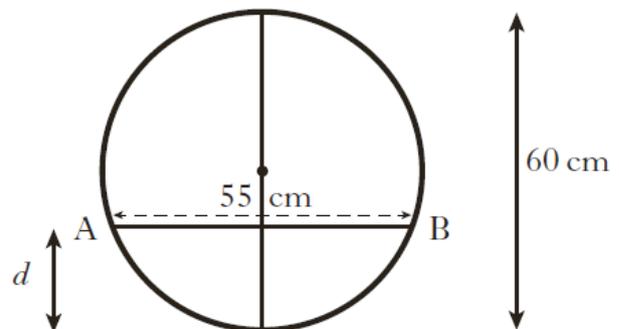
- 11) A tanker delivers oil to garages.  
The tank has a circular cross-section as shown in the diagram below.



The radius of the circle, centre  $O$ , is 1.9m.  
The width of the surface of the oil, represented by  $AB$  in the diagram, is 2.2m.  
Calculate the depth of the oil in the tanker.

4

- 12) Water flows through a pipe of diameter 60cm.  
The surface width,  $AB$ , of the water is 55cm.



a) Calculate the depth,  $d$ , of the water in the pipe.

4

b) What other depth of water would give the same surface width?

1