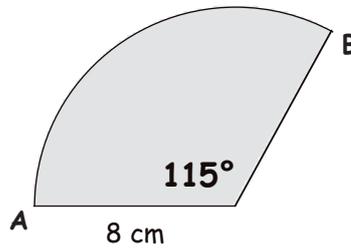
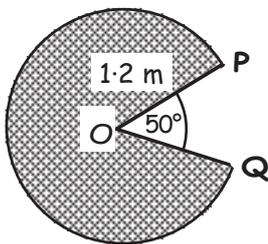


You may use a calculator in this assessment, but you must show all working.

1. Calculate the length of the arc AB.



2.



Al is replacing the fabric on his garden parasol.

He uses a major sector of a circle, with radius 1.2 metres.

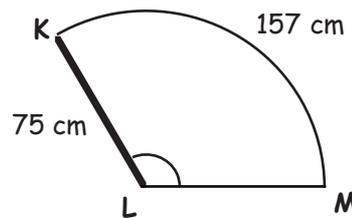
Calculate the **area** of fabric needed to replace the old material.

3. A door can only open so far into a room due to a television set positioned behind the door.

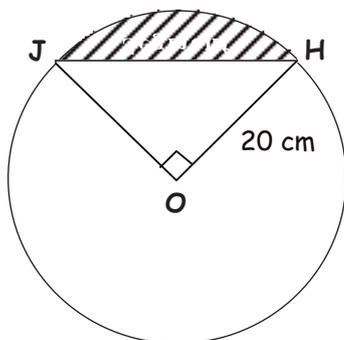
The door is 75 centimetres wide.

The length of the arc through which the door can rotate is 157 centimetres.

Calculate the size of the angle ($\angle KLM$) through which the door can rotate.



4.



The **striped** shaded area shown is called a **segment** of the circle, centre O.

(a) Calculate the **area** of the **sector** JOH.

(b) Calculate the area of the right angled **triangle** JOH.

(c) Determine the area of the striped segment.

Please Turn Over

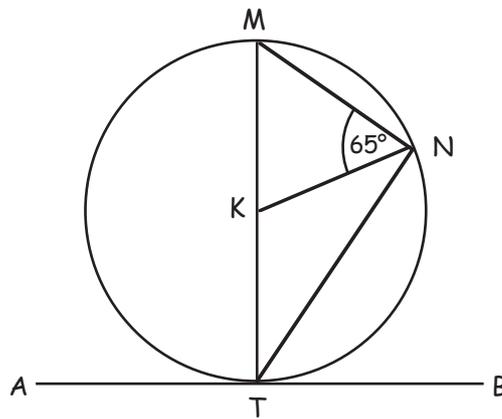


5. AB is a tangent to this circle, centre K and it meets the circle at point T .

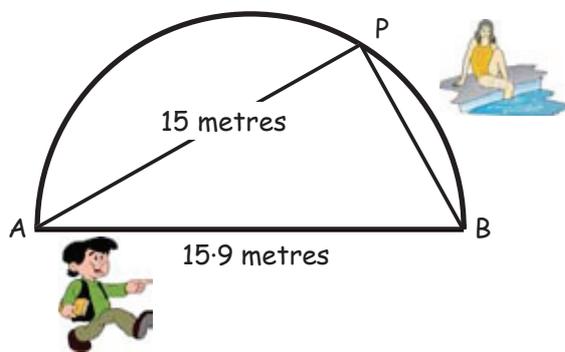
MT is a diameter and N is a point on the circumference of the circle.

$$\angle MNK = 65^\circ$$

Make a neat sketch of the diagram and fill in as many angles as you can to help you find the size of $\angle NTB$.



- 6.



A swimming pool, in the shape of a semi-circle, has a diameter of 15.9 metres.

Donald walked from A to B .

Sarah swam from A to P to B .

How much further had Sarah travelled than Donald?

(Answer correct to 1 decimal place)

7. Sophie built a small tower, made of bricks, in her back garden. On top of it she fitted a large glass light-bulb holder.

The diagram shows it as part of a circle.

Centre, C , is 20 centimetres above the top of the wall.

- (a) Calculate the **radius** of the circular bulb holder.
 (b) Use this to find the total height (H cm) of the structure.

