- **10.** The diagram shows a circle with centre O. ST is a tangent to the circle with point of contact Q. $\angle PQT = 56^{\circ}$.
 - (a) Calculate the size of $\angle POQ$.
 - (b) Hence calculate the length of the major arc PQ given that the radius of the circle is 14cm.



11. The sign outside a pet shop is formed from part of a circle.

The circle has centre O and radius 26cm.



Given that the line AB = 48cm, calculate the width, w cm, of the sign.

12. The Pot Black Snooker Club has this sign at its entrance.It consists of 10 circles each with radius 8cm.Calculate the height, *h* cm, of the sign.





14. The circle in the diagram has centre O and radius 6cm.

R is the point of contacT of the tangent PQ.

Given that OQ = 10cm calculate the length of RQ.



15. A child's toy is in the shape of a sphere with a duck and some water inside.



As the ball rolls around the water remains at the same level.

The diagram opposite shows the cross section when the sphere has been halved.

Given that the radius of the sphere is 6 cm and that the depth of the water is 4cm, calculate the width of the water surface (*w*cm).

