7 A chord of a circle has length 3 cm. If the circle has radius 4 cm, find the shortest distance from the centre of the circle to the chord.

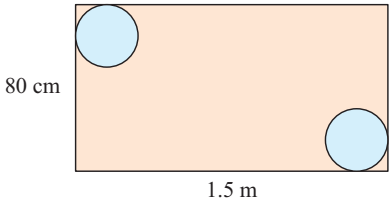
8 A chord of length 6 cm is 3 cm from the centre of a circle. Find the length of the circle's radius.

9 A chord is 5 cm from the centre of a circle of radius 8 cm. Find the length of the chord.

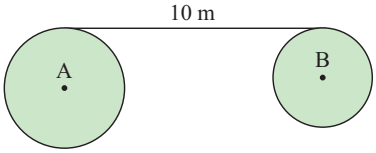
10 A circle has radius 3 cm. A tangent is drawn to the circle from point P which is 9 cm from O, the circle's centre. How long is the tangent? Leave your answer in surd form.

11 Find the radius of a circle if a tangent of length 12 cm has its end point 16 cm from the circle's centre.

12 Two circular plates of radius 15 cm are placed in opposite corners of a rectangular table as shown. Find the distance between the centres of the plates.

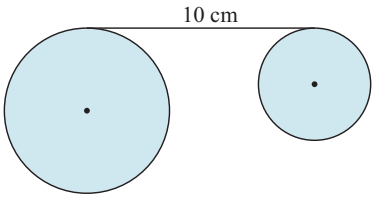


13



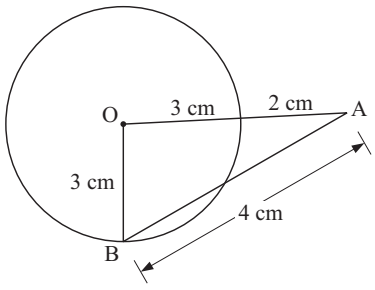
A and B are the centres of two circles with radii 4 m and 3 m respectively. The illustrated common tangent has length 10 m. Find the distance between the centres correct to 2 decimal places.

14 Two circles are drawn so they do not intersect. The larger circle has radius 6 cm. A common tangent is 10 cm long and the centres are 11 cm apart. Find the radius of the smaller circle, correct to 3 significant figures.

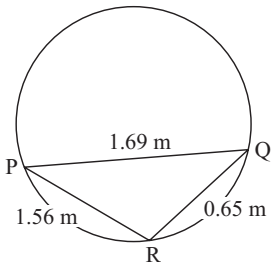


15 The following figures have not been drawn to scale, but the information marked on them is correct. What can you deduce from each figure?

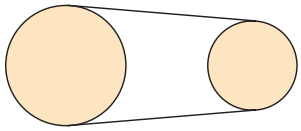
a



b



16



Any two circles which do not intersect have two common external tangents as illustrated. The larger circle has radius b and the smaller one has radius a. The circles are $2a$ units apart. Show that each common tangent has length $\sqrt{8a(a+b)}$ units.