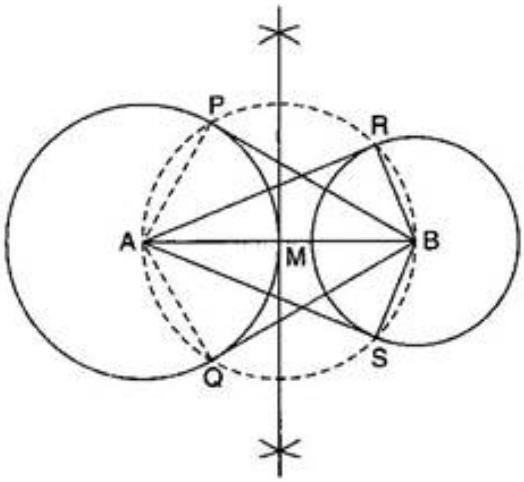
$\Rightarrow \angle ACB = 60°$

Q5. Draw a line segment AB of length 8 cm. Taking A as centre, draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle.

Ans: To construct: A line segment of length 8 cm and taking A as centre, to draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Also, to construct tangents to each circle from the centre to the other circle.

Steps of Construction:



(a) Bisect BA. Let M be the mid-point of BA.

(b) Taking M as centre and MA as radius, draw a circle. Let it intersects the given circle at the points P and Q.

(c) Join BP and BQ.

Then, BP and BQ are the required two tangents from B to the circle with centre A.

(d) Again, Let M be the mid-point of AB.

(e) Taking M as centre and MB as radius, draw a circle. Let it intersects the given circle at the points R and S.

(f) Join AR and AS.

Then, AR and AS are the required two tangents from A to the circle with centre B.

Justification: Join BP and BQ.

Then $\angle$ APB being an angle in the semicircle is 90°.

$\Rightarrow$ BP $\perp$ AP

Since AP is a radius of the circle with centre A, BP has to be a tangent to a circle with centre A. Similarly, BQ is also a tangent to the circle with centre A.

Again join AR and AS.

Then $\angle$ ARB being an angle in the semicircle is 90°.

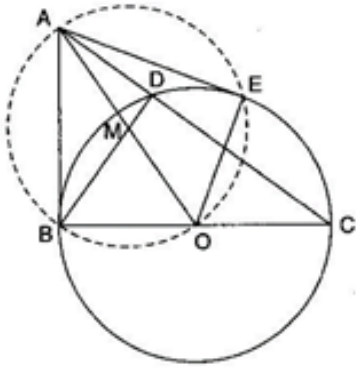
$\Rightarrow$ AR $\perp$ BR

Since BR is a radius of the circle with centre B, AR has to be a tangent to a circle with centre B. Similarly, AS is also a tangent to the circle with centre B.

Q6. Let ABC be a right triangle in which AB = 6 cm, BC = 8 cm and $\angle$ B = 90°. BD is the perpendicular from B on AC. The circle through B, C, D is drawn. Construct the tangents from A to this circle.

Ans: To construct: A right triangle ABC with AB = 6 cm, BC = 8 cm and $\angle$ B = 90°. BD is the perpendicular from B on AC and the tangents from A to this circle.

Steps of Construction:



(a) Draw a right triangle ABC with AB = 6 cm, BC = 8 cm and $\angle$ B = 90°. Also, draw perpendicular BD on AC.

(b) Join AO and bisect it at M (here O is the centre of circle through B, C, D).

(c) Taking M as centre and MA as radius, draw a circle. Let it intersects the given circle at the points B and E.

(d) Join AB and AE.

Then AB and AE are the required two tangents.

Justification: Join OE.

Then, $\angle$AEO is an angle in the semicircle.

$\Rightarrow \angle AEO = 90°$

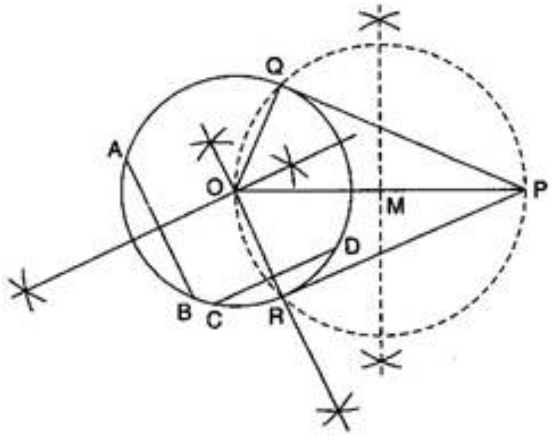
$\Rightarrow AE \perp OE$

Since OE is a radius of the given circle, AE has to be a tangent to the circle. Similarly, AB is also a tangent to the circle.

Q7. Draw a circle with the help of a bangle. Take a point outside the circle. Construct the pair of tangents from this point to the circle.

Ans: To construct: A circle with the help of a bangle. Take a point outside the circle. Construct the pair of tangents from this point to the circle.

Steps of Construction:



(a) Draw a circle with the help of a bangle.

(b) Take two non-parallel chords AB and CD of this circle.

(c) Draw the perpendicular bisectors of AB and CD. Let these intersect at O. Then O is the centre of the circle draw.

(d) Take a point P outside the circle.

(e) Join PO and bisect it. Let M be the mid-point of PO.

(f) Taking M as centre and MO as radius, draw a circle. Let it intersects the given circle at the points Q and R.

(g) Join PQ and PR.

Then PQ and PR are the required two tangents.

Justification: Join OQ and OR.

Then, $\angle$ PQO is an angle in the semicircle.

$\Rightarrow \angle PQO = 90°$

$\Rightarrow PQ \perp OQ$

Since OQ is a radius of the given circle, PQ has to be a tangent to the circle. Similarly, PR is also a tangent to the circle.

********** END **********