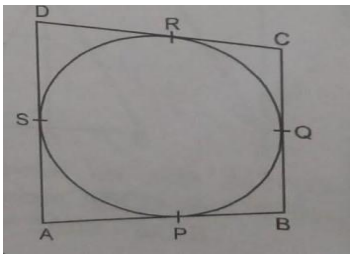
INTERNATIONAL INDIAN SCHOOL BURAIDAH
Worksheet 2026-27
CLASS: X
SUBJECT: MATHEMATICS
Chapter No:10 – Circles

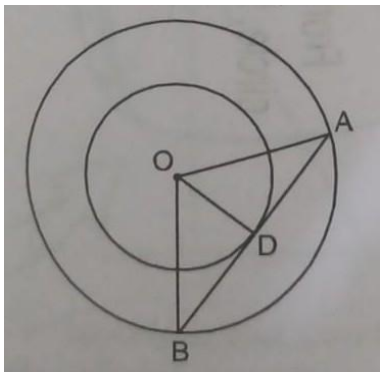
MCQ:

1-In the given figure , a quadrilateral ABCD is drawn to circumscribe a circle such that its side AB ,BC ,CD and AD touch the circle at P,Q,R and S respectively.If AB= $x\ cm$, $BC = 7cm, CR = 3cm\ \ and\ AS = 5cm$, $find\ x$.



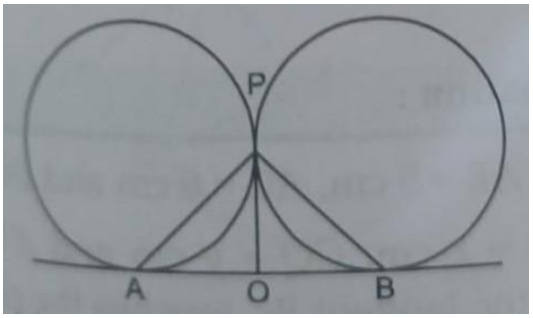
(a) 10 cm (b) 8 cm (c) 9 cm (d) 7 cm

2-Two concentric circles have radii 5 cm and 3 cm . Find the length of the chord of the larger circles which touches the smaller circle (at a point)



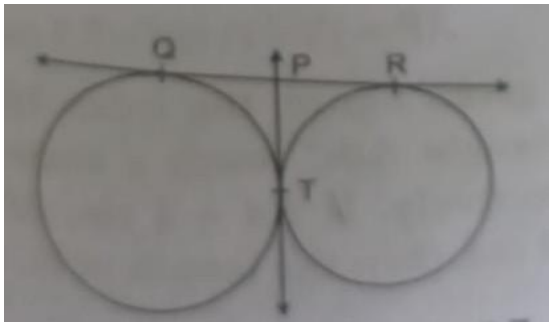
(a) 4 cm (b) 5 cm (c) 8 cm (d) 10 cm

3-Two circles touch each other externally at P. AB is a common tangent to the circles ,touching them at A and B .The value of $\angle APB\ is$



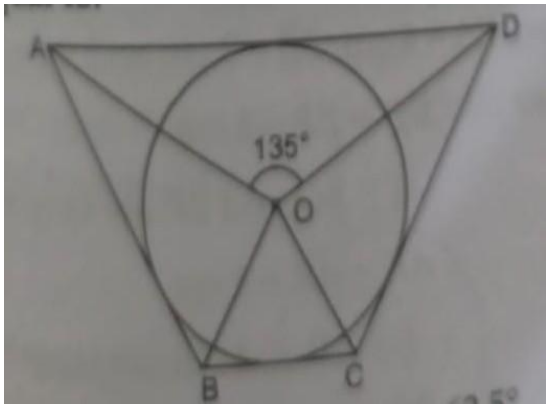
(a) 30^0 (b) 60^0 (c) 90^0 (d) 45^0

4-In the given figure,QR is a common tangent to the given cicles,touching externally at point T .The tangent at T meets QR at P.If PT=3.8 cm ,then length of QR(in cm) is:



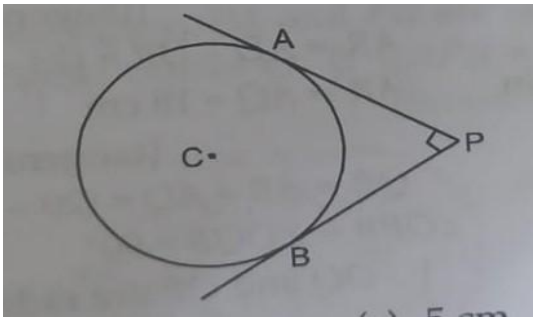
(a) 3.8 cm (b) 5.7 cm (c) 7.6 cm (d) 1.9 cm

5-In the given figure,if $\angle AOD = 135^0$, then $\angle BOC$ is equal to:



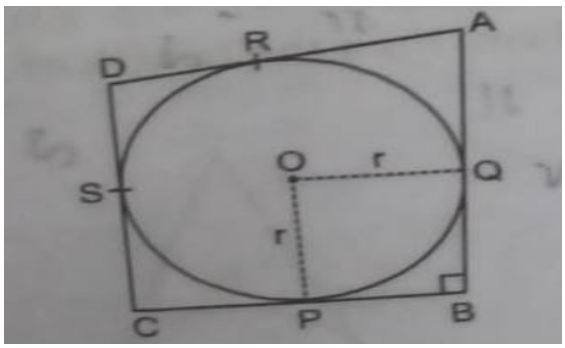
(a) 52.5^0 (b) 62.5^0 (c) 45^0 (d) 25^0

6-In the given figure ,PA and PB are two tangents drawn from external point P to a circle with centre C and radius 4 cm .If PA is perpendicular to PB ,then length of each tangent is:



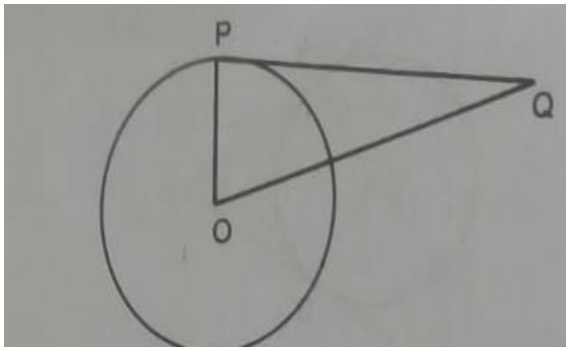
(a) 3 cm (b) 5 cm (c) 4 cm (d) 6 cm

7-In the given figure , a circle with centre O is inscribed in a quadrilateral ABCD such that it touches the side BC, AB , AD and CD at a points P , Q , R and S respectively .If AB =29 cm , AD= 23 cm , $\angle B = 90^0$ and DS =5cm ,then radius of the circle (in cm) is :



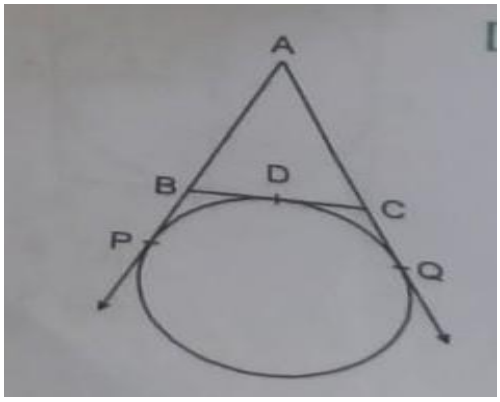
(a) 11 cm (b) 6 cm (c) 18 cm (d) 5 cm

8-From a point Q , 13 cm away from the centre of a circle ,the length of tangent PQ to the circle is 12 cm .The radius of circle (in cm) is:



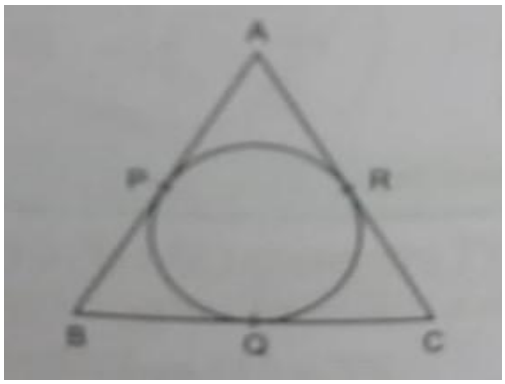
(a) 25 (b) 5 (c) $\sqrt{313}$ (d) 1

9-In the given figure ,AP, AQ and BC are tangents to the circle .If AB= 5 cm ,AC= 6 cm and BC =4 cm ,then the length of AP (in cm) is:



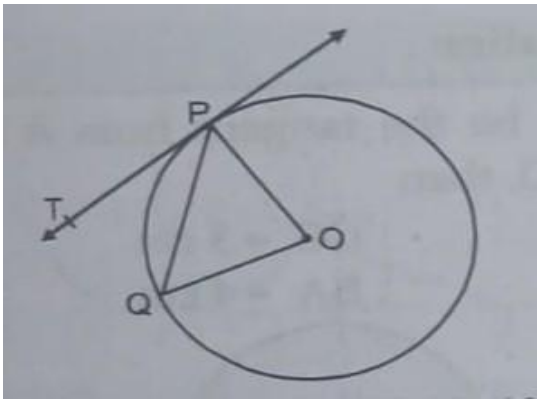
(a) 7.5 (b) 10 (c) 15 (d) 9

10-In the given figure ,the sides AB , BC and CA of a triangle ABC touch a circle at P , Q and R respectively.If PA= 4 cm , BP= 3 cm and AC = 11 cm ,then the length of BC (in cm)is :



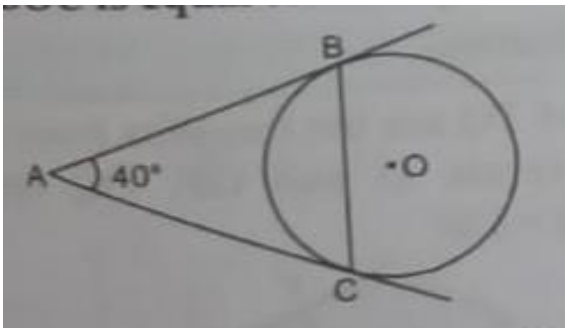
(a) 11 (b) 14 (c) 10 (d) 15

11-In the given figure ,O is the centre of the circle , PQ is a chord and PT is the tangent at P .If $\angle POQ = 70^0$,then $\angle TPQ\ equals\ to$:



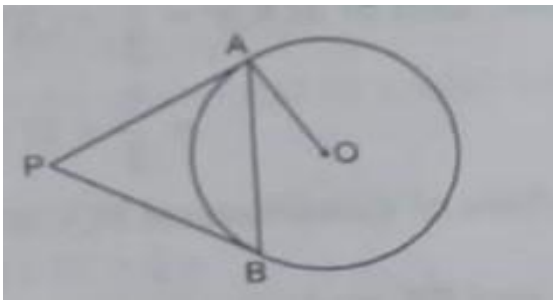
(a) 70^0 (b) 35^0 (c) 90^0 (d) 45^0

12-In the given figure , AB and AC are the tangents to the circle O such that $\angle BAC = 40^0$ Then $\angle BOC$ is equal to



(a) 40^0 (b) 140^0 (c) 50^0 (d) 150^0

13- In the given figure ,PA and PB are the tangents to the circle with centre O.If $\angle APB = 60^0$ then $\angle OAB\ is$

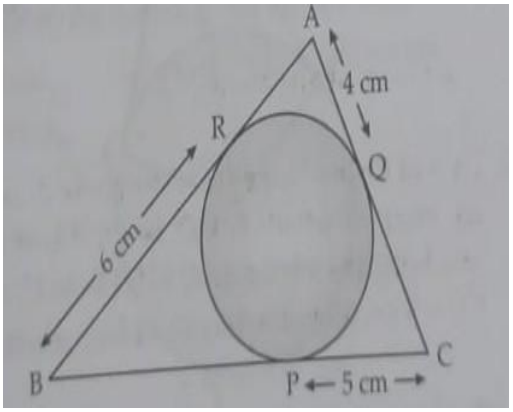


(a) 30^0 (b) 90^0 (c) 60^0 (d) 15^0

14-ABC is Right Angle Triangle ,right angle at B such that BC= 6cm and AB= 8 cm .A circle with centre O is incscribed in ΔABC. The radius of circle is :

(a) 1 cm (b) 3 cm (c) 2 cm (d) 4 cm

15-In the given figure ., the perimeter of ΔABC is



a) 30 cm (b) 45 cm (c) 60 cm (d) 15 cm

Assertion and reasoning :

1-Assertion: In a circle ,the radius of the circle is 3 cm and a distance of a point from the centre of the circle is 5 cm , then the length of the tangent from that point will be 4 cm .

Reason:The tangent at any point of a circle is perpendicular to the radius through the point of contact .

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

2-Assertion : -If two tangent segments are drawn to one circle from the same external point,then they are congruent

Reason : If a line touches the circle ,then perpendicular distance of the line from the centre of the circle is equal to the radius of the circle.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

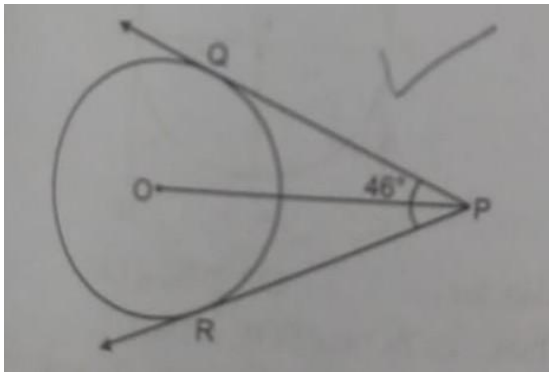
c) A is true but R is false.

d) A is false but R is true.

Subjective Questions:

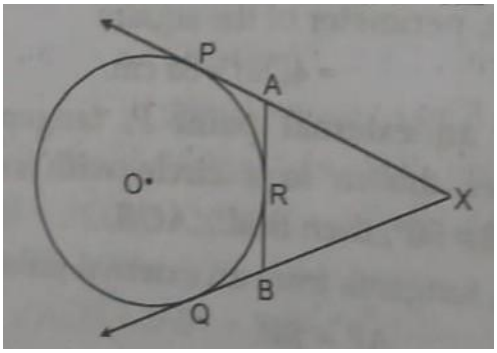
1-If the angle between two tangents drawn from an external point P to a circle of radius a and centre O is 60^0 , then find the length of OP.

2-In the given figure ,PQ and PR are two tangents to a circle with centre O .If $\angle QPR = 46^0$,then find $\angle QOR$

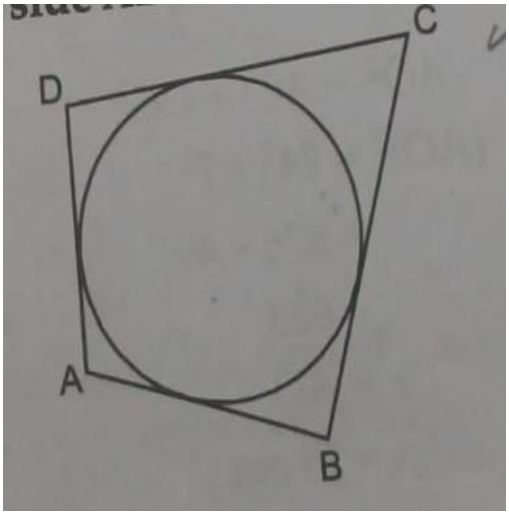


3-In the given figure XP and XQ are two tangents to the circle with centre O drawn from an external point X .ARB is another tangent touching the circle at R .Prove that

XA +AR = XB + BR



4-In the given figure ,a circle touches all the four sides of a quadrilateral ABCD whose sides are AB = 6 cm , BC =9 cm and CD = 8 cm find the length of of side AD



5-A circle touches the side BC of a triangle ABC at a point P and touches AB and AC when produced at Q and R respectively .Show that AQ = ½ (perimeter of triangle ABC).

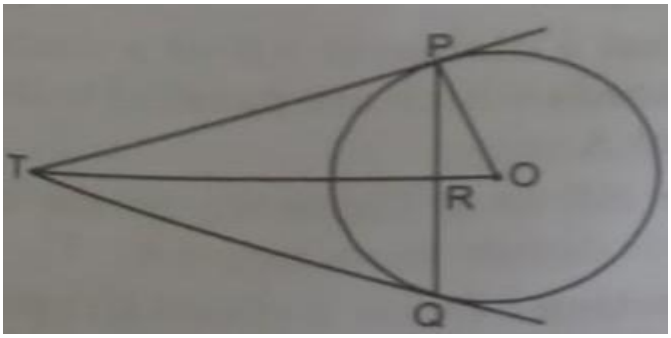
6-Two tangents PA and PB are drawn to a circle with centre O from an external point P prove that $\angle APB = 2\,\angle OAB$

7-Prove that the angle between the two tangents drawn from the external point to a circle is supplementary to the angle subtended by a line segment joining the points of contact at the centre .

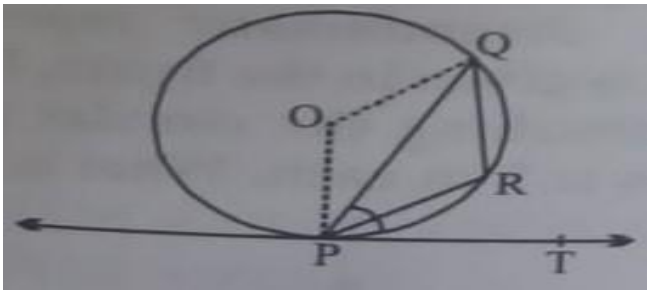
8-Prove that the tangent at any point to a circle is perpendicular to the radius through the point of contact

9-Prove that the opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle .

10-In the given figure , PQ is a chord of length 16 cm and the radius of circle is 10 cm .The tangents at P and Q intersect at a point T.find the length of

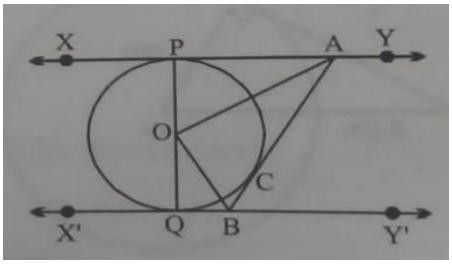


11-In figure ,PQ is a chord of a circle with centre O and PT is a tangent .If $\angle QPT = 60^0$ $Find\ angle$ $\angle P$

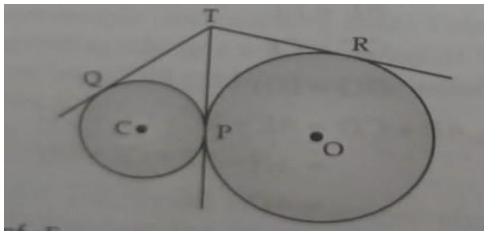


12-Prove that the length of the tangents drawn from an external point to a circle are equal.
13-From a point T outside a circle of centre O ,tangent TP and TQ are drawn to the circle .Prove that OT is the right bisector of a line segment PQ.

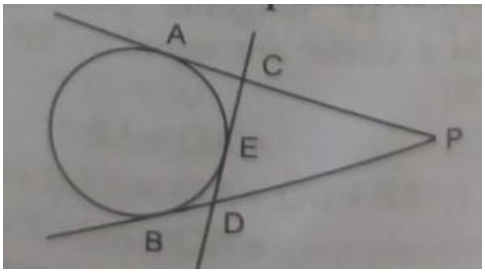
14-In the given figure ,XY and X' Y' are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X'Y' at B .Prove that $\angle AOB = 90^0$



15-Two circles touch externally at a point P. from a point T on the tangent at P, tangents TQ and TR are drawn to the circles with point of contact Q and R respectively .Prove that TQ = TR



16-From an external point P,two tangents , PA and PB are drawn to the circle with centre O .At a point E on the circle ,a tangent is drawn to intersect PA and PB at C and D ,respectively . If PA =10 cm ,find the perimeter of ΔPCD



18-In the given figure , a ΔPQR is drawn to circumscribe a circle of radius 6 cm such that the segments QT and TR into which QR is divided by a point of contact are of length 12 cm and 9 cm respectively .If the area of ΔPQR =189 cm^2 , then find the lengths of sides PQ and PR.

