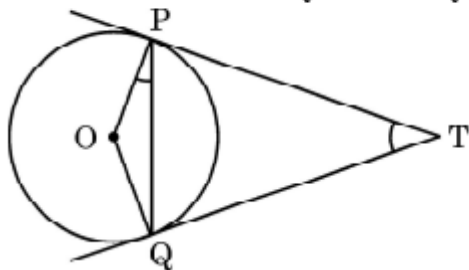




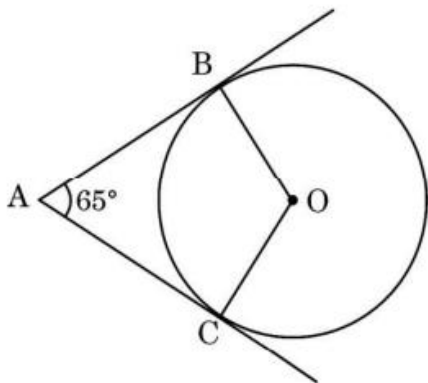
2023- 30/1/1- 29Q(3M)

Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.



2023-30/2/1 – 2 MARK

In the given figure, O is the centre of the circle. AB and AC are tangents drawn to the circle from point A. If $\angle BAC = 65^\circ$, then find the measure of $\angle BOC$.



2023-30/4/1 – 2 mark

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

2023-30/4/3- 3 MARK

From an external point, two tangents are drawn to a circle. Prove that the line joining the external point to the centre of the circle bisects the angle between the two tangents.

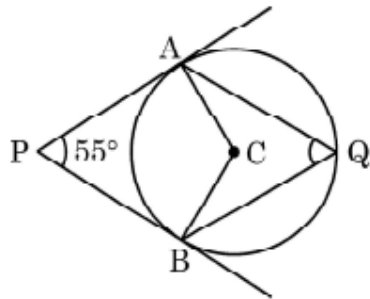
2023-30/2/2- 1 MARK

Assertion (A) : If PA and PB are tangents drawn from an external point P to a circle with centre O, then the quadrilateral AOBP is cyclic.

Reason (R): The angle between two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the points of contact at the centre.

2023-30/6/1- 1 MARK

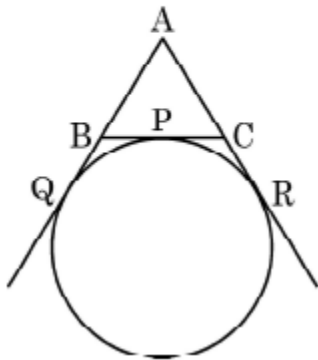
In the given figure, PA and PB are tangents from external point P to a circle with centre C and Q is any point on the circle. Then the measure of $\angle AQB$ is



- (A) $62\frac{1}{2}^\circ$ (B) 125°
 (C) 55° (D) 90°

2023-30/3/1- 5 mark

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 $AQ = \frac{1}{2}$ (Perimeter of $\triangle ABC$).

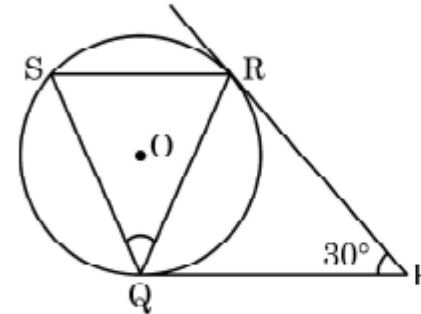


2023-30/6/3- 5 mark

(A) Prove that a parallelogram circumscribing a circle is a rhombus.

OR

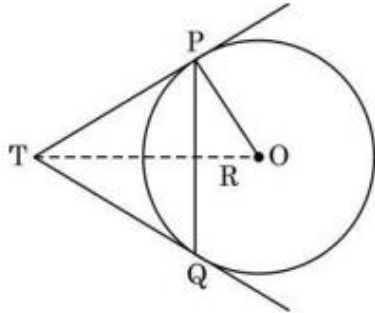
(B)



In the given figure, tangents PQ and PR are drawn to a circle such that $\angle RPQ = 30^\circ$. A chord RS is drawn parallel to the tangent PQ. Find the measure of $\angle RQS$.

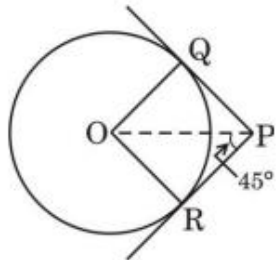
2022-30/2/1- 4 MARK

In Fig. 4, PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q meet at a point T. Find the length of TP.



2022-30/3/1- 2 MARK

In Figure 2, PQ and PR are tangents to the circle centred at O. If $\angle OPR = 45^\circ$, then prove that ORPQ is a square.



2022-30/B/5 – 4 MARK

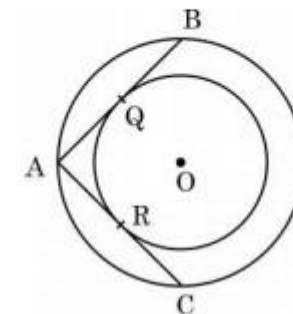
If two circles touch each other externally, then prove that the point of contact lies on the line joining their centres.

OR

Prove that the lengths of two tangents drawn from an external point to a circle are equal.

2022-30/4/1- 2 MARK

In Fig. 1, there are two concentric circles with centre O. If ARC and AQB are tangents to the smaller circle from the point A lying on the larger circle, find the length of AC, if $AQ = 5$ cm.



2020-30/3/3- 1 MARK

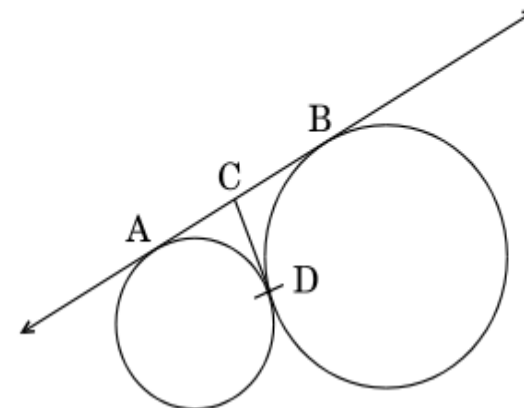
THE DISTANCE BETWEEN TWO PARALLEL TANGENTS OF A CIRCLE OF RADIUS 4 CM IS

2020-30/3/3- 2 MARK

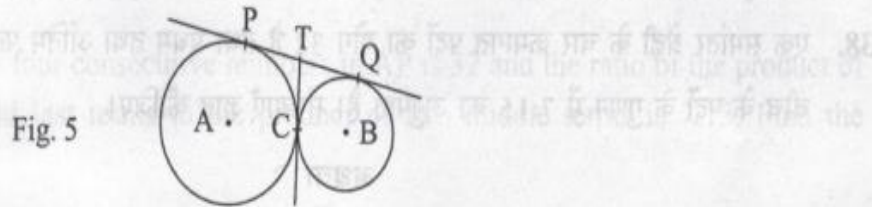
Prove that the tangents at the extremities of any chord of a circle make equal angles with the chord.

2020-30/4/1- 1 MARK

In Figure-4, AB and CD are common tangents to circles which touch each other at D. If AB = 8 cm, then find the length of CD.



In given Fig. 5, two circles touch each other at the point C. Prove that the common tangent to the circles at C, bisects the common tangent at P and Q.



2020-30/3/1- 1 MARK

In Fig. 2, PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then the measure of $\angle OAB$ is _____.

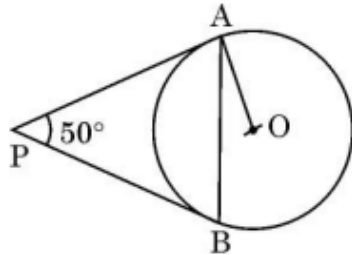
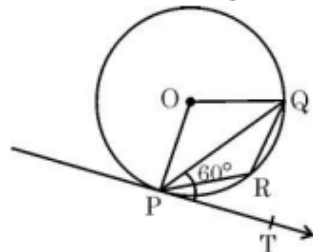


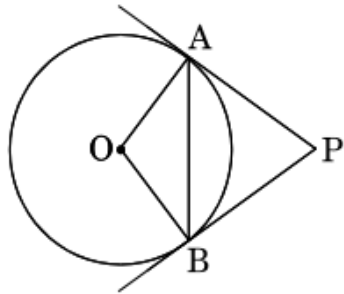
Fig. 2
OR

In Fig. 3, PQ is a chord of a circle and PT is tangent at P such that $\angle QPT = 60^\circ$, then the measure of $\angle PRQ$ is _____.



2020-30/4/2- 3 MARK

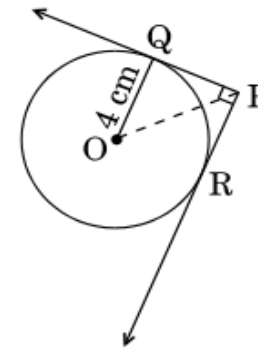
In Figure-7, two tangents PA and PB are drawn to a circle with centre C from an external point P. Prove that $\angle APB = 2 \angle OAB$.



2020-30/5/1- 1 MARK

In Figure-3, from an external point P, two tangents PQ and PR are drawn to a circle of radius 4 cm with centre O. If $\angle QPR = 90^\circ$, then length of PQ is

- (A) 3 cm
- (B) 4 cm
- (C) 2 cm
- (D) $2\sqrt{2}$ cm



M- 2015 – 2 MARK

In Figure 3, two tangents RQ and RP are drawn from an external point R to the circle with centre O. If $\angle PRQ = 120^\circ$, then prove that $OR = PR + RQ$.

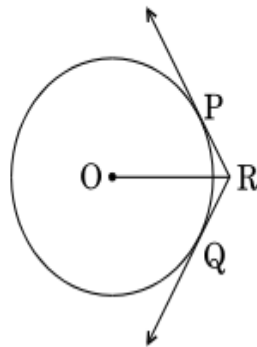


Figure 3

All concentric circles are _____ to each other.

M_2016- 2 MARK

In Fig. 3, from an external point P, two tangents PT and PS are drawn to a circle with centre O and radius r. If $OP = 2r$, show that $\angle OTS = \angle OST = 30^\circ$.

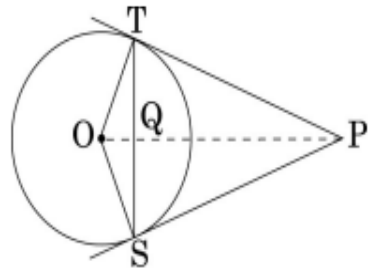


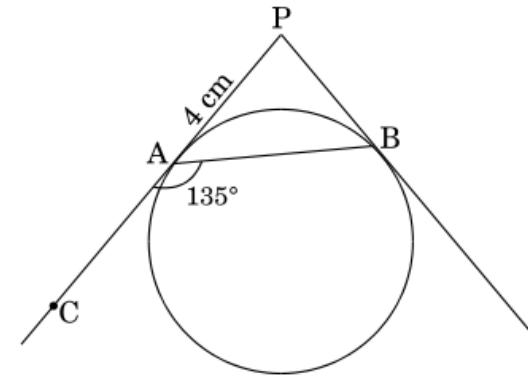
Figure 3

m_2017 – 1 MARK

If the angle between two tangents drawn from an external point P to a circle of radius a and Centre O, is 60 Degrees, then find the length of OP.

MF2017- 3 MARK

In the given figure, PA and PB are tangents to a circle from an external point P such that $PA = 4$ cm and $\angle BAC = 135^\circ$. Find the length of chord AB.



Mf2016- 2 mark

In Fig. 2, from a point P, two tangents PT and PS are drawn to a circle with centre O such that $\angle SPT = 120^\circ$, Prove that $OP = 2PS$.

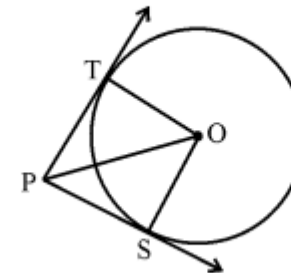


Fig. 2

MF2016-2 MARK

In fig. 3 are two concentric circles of radii 6 cm and 4 cm with centre O. If AP is a tangent to the larger circle and BP to the smaller circle and length of AP is 8 cm, find the length of BP.

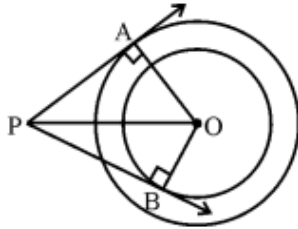


Fig. 3

MF 2015- 2 MARK

In Figure 1, O is the centre of a circle. PT and PQ are tangents to the circle from an external point P. If $\angle TPQ = 70^\circ$, find $\angle TRQ$.

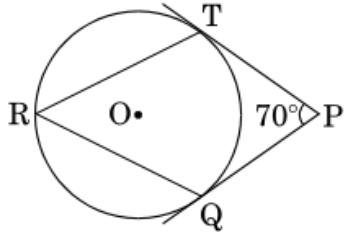


Figure 1

MD 2016- 2 MARK

In Fig. 3, AP and BP are tangents to a circle with centre O, such that $AP = 5$ cm and $\angle APB = 60^\circ$. Find the length of chord AB.

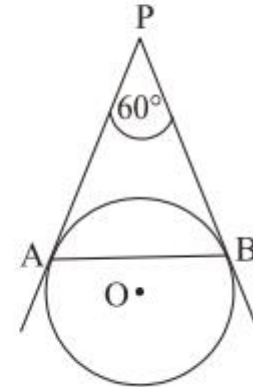


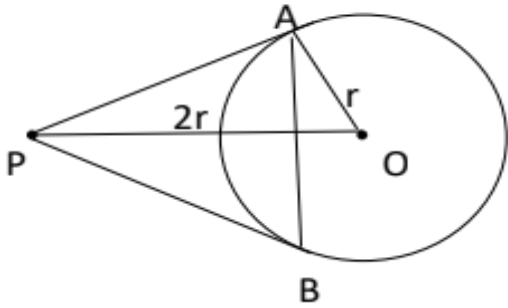
Fig. 3

MD 2015 – 2 MARK

From a point T outside a circle of centre O, tangents TP and TQ are drawn to the circle. Prove that OT is the right bisector of line segment PQ.

MS – T2 – 2022- 2 MARK

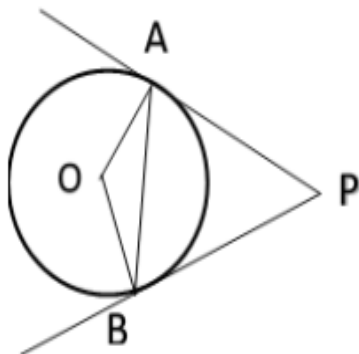
From a point P, two tangents PA and PB are drawn to a circle C(O, r). If $OP = 2r$, then find $\angle APB$. What type of triangle is APB?



Ms – 2024- 3 MARK

PA and PB are tangents drawn to a circle of centre O from an external point P. Chord AB makes an angle of 30° with the radius at the point of contact.

If length of the chord is 6 cm, find the length of the tangent PA and the length of the radius OA.



Ms-2023- 1 mark

If two tangents inclined at an angle of 60° are drawn to a circle of radius 3cm, then the length of each tangent is equal to

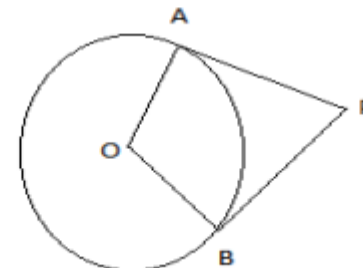
- (a) $\frac{3\sqrt{3}}{2}$ cm (b) 3cm (c) 6cm (d) $3\sqrt{3}$ cm

Ms2020 – 1 mark

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

M2017- 1 mark

4. In the given figure PA and PB are tangents to a circle with centre O. If $\angle APB = (2x + 3)^\circ$ and $\angle AOB = (3x + 7)^\circ$, then find the value of x



M2017- 2 MARK

In the given figure, common tangents AB and CD to the two circles intersect at E. Prove that $AB = CD$.

