UDAAN 2024

– FOR CLASS 10th STUDENTS

Lecture No.- 05

- Subject Name- Mathematics
- Chapter Name- Circles

By- RITIK SIR

Topic to be Covered

Topic Important Question (Part IV)

One markers

Topic : Circle

#Q. In the figure below, M and N centres of two semi-circles having radii 9 cm and 16 cm respectively. ST is a common tangent. Find the length of PQ .

[CBSE [redacted] Practice Sheet Questions]

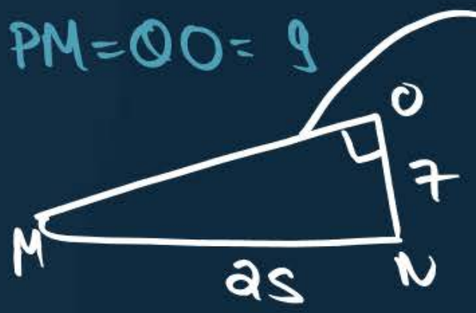
Construction: MO || PQ

Since PQ || MO

$\therefore \angle PMO = \angle MOQ = 90^\circ$ [Cointerior angles]

$\Rightarrow$ MOQP is a rectangle..

PM = OQ = 9



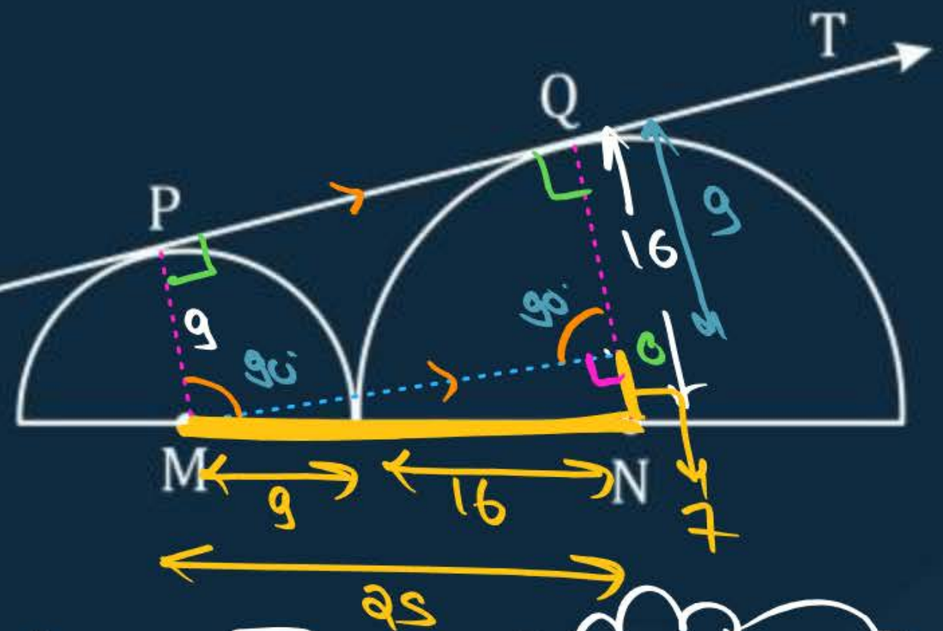
$(MN)^2 = (ON)^2 + (MO)^2$

$625 = 49 + (MO)^2$

$576 = (MO)^2$

$MO = \sqrt{576}$

$\boxed{MO = 24}$



PQ = 24 cm

Topic : Circle

#Q. A Circle is drawn. Two point are marked outside the circle such that only 3 tangent can be drawn to the circle using these two points. Which of the following is true based on the above information.

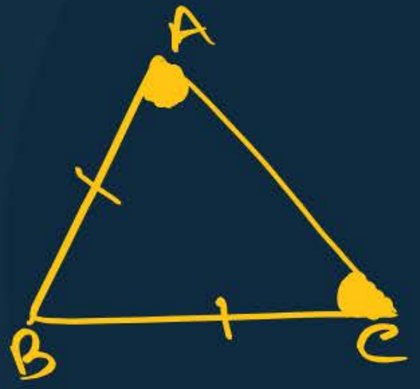
[CBSE [redacted] Practice Sheet Questions]

A All three tangents are equal in length

B Both the points lie on one of the tangents.

C The tangnets and the circle have two common points in total

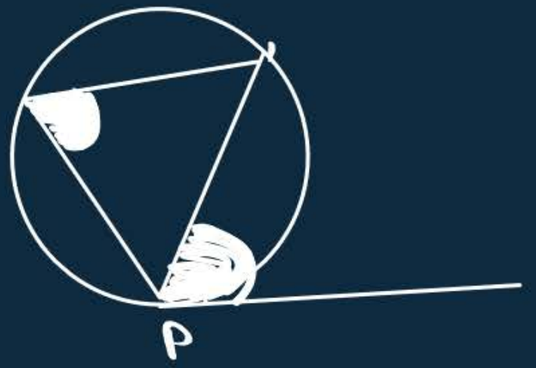
D Such a situation is not possible as with 2 points, there will be 4 tangent to the cirlce

① 

② 

Angle in the semi-circle.

③ Alternate segment theorem (Chord-tangent theorem)



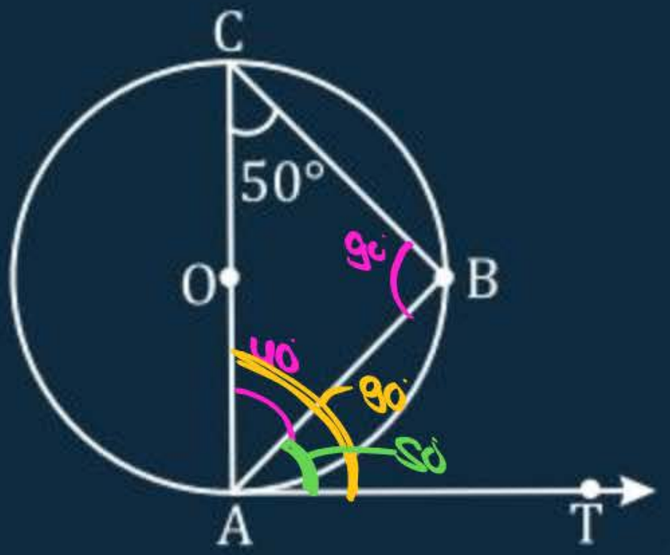
④ 

Angle subtended by an arc at the Centre of a circle is double the angle subtended by it on any point on the circle.

Topic : Circle

#Q. In the figure, AB is a chord of the circle and AOC is its diameter such that $\angle ACB = 50°$. If AT is the tangent to the circle at the point A, then $\angle BAT$ is equal to

[NCERT Exemplar]



A $65°$

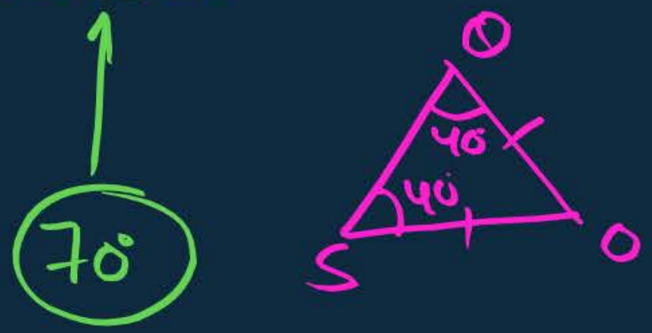
B $60°$

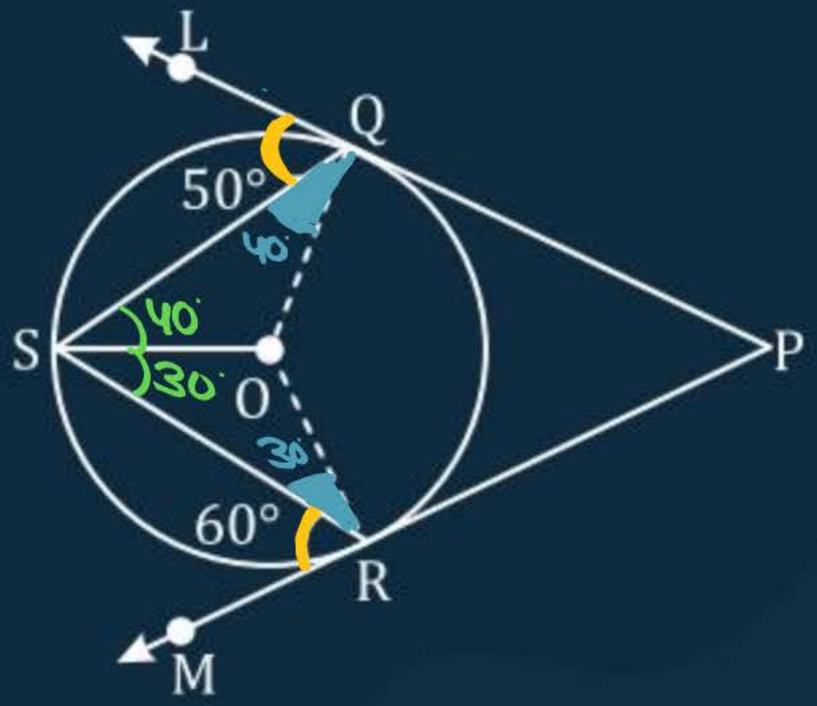
C $50°$

D $40°$

#Q. In fig. PQL and PRM are tangents to the circle with centre O at the points Q and R respectively and S is the point on the circle such that $\angle SQL = 50°$, $\angle SRM = 60°$. Then find $\angle QSR$.

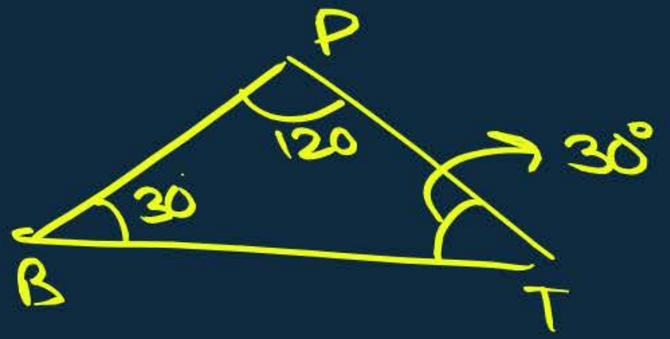
[NCERT Exemplar]

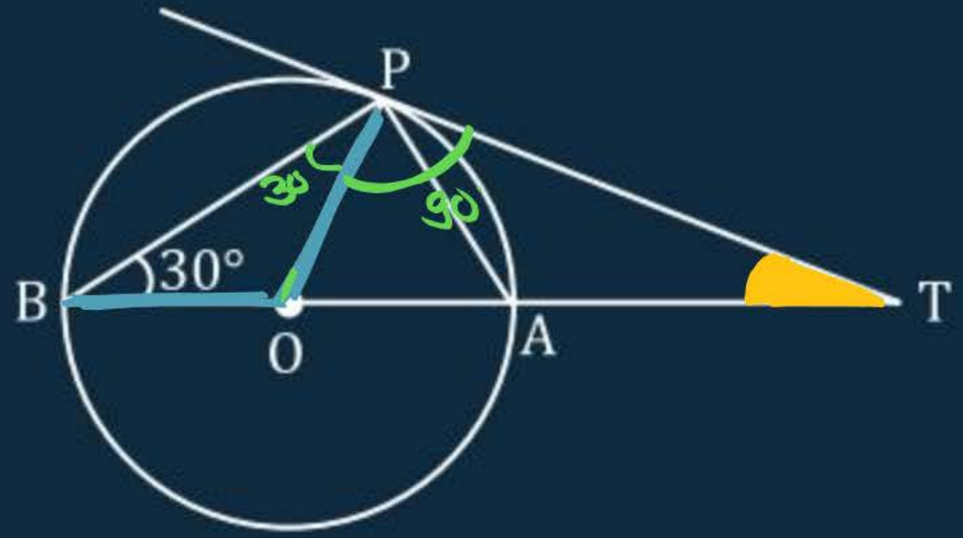




Topic : Circle

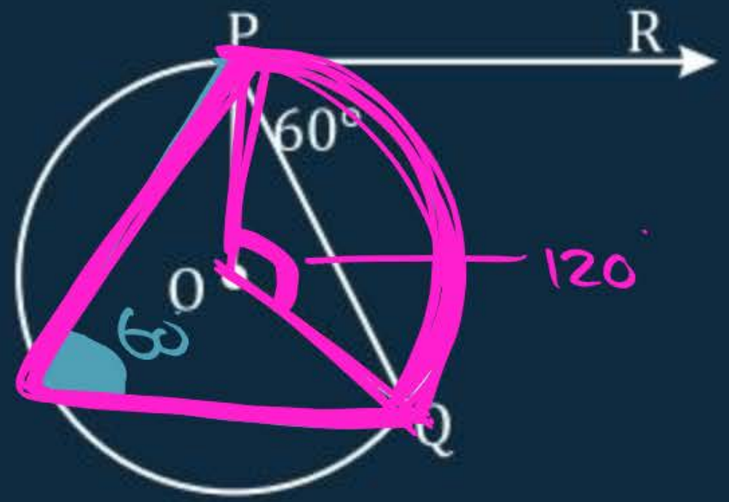
#Q. In fig. BOA is a diameter of a circle and the tangent at a point P meets on BA produced at T. If $\angle PBO = 30°$, then find $\angle PTA$. **[NCERT Exemplar]**





Topic : Circle

#Q. In fig, if PR is tangent to the circle at P and Q is the centre of the circle, then $\angle POQ =$



A $110°$

B $100°$

C $120°$

D $90°$

Topic : Circle

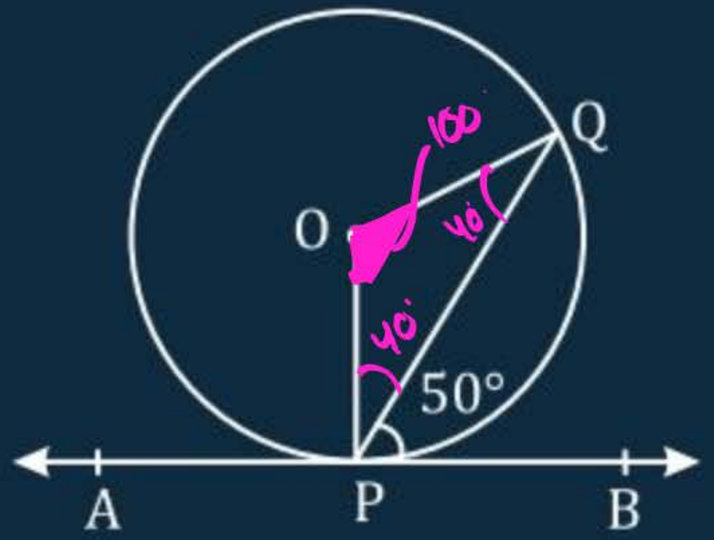
#Q. In fig. APB is a tangent to a circle with centre O at point P. If $\angle QPB = 50°$, then the measure of $\angle POQ$ is

A 100°

B 120°

C 140°

D 150°



Topic : Circle

#Q. In fig. if tangent PA and PB are drawn to a circle such that ∠APB = 30° & chord AC is drawn parallel to the tangent PB, then ∠ABC = **[NCERT Exemplar]**

A 60°

B 90°

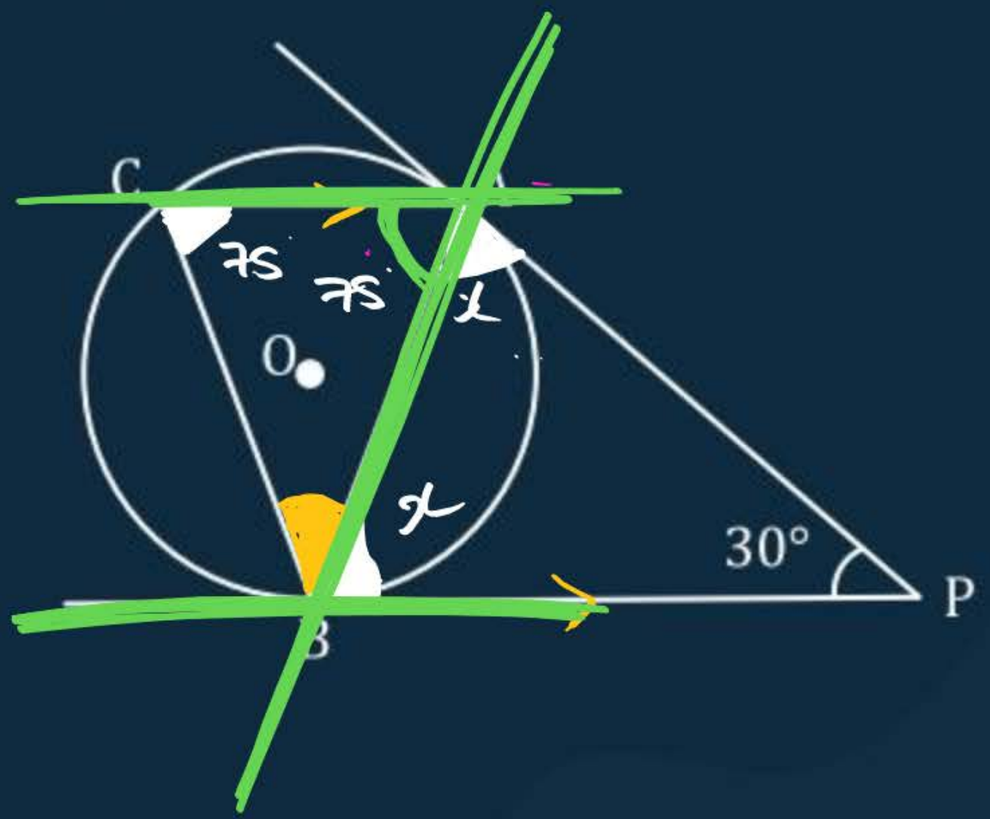
C 30°

D None of these

$x + x + 30 = 180$

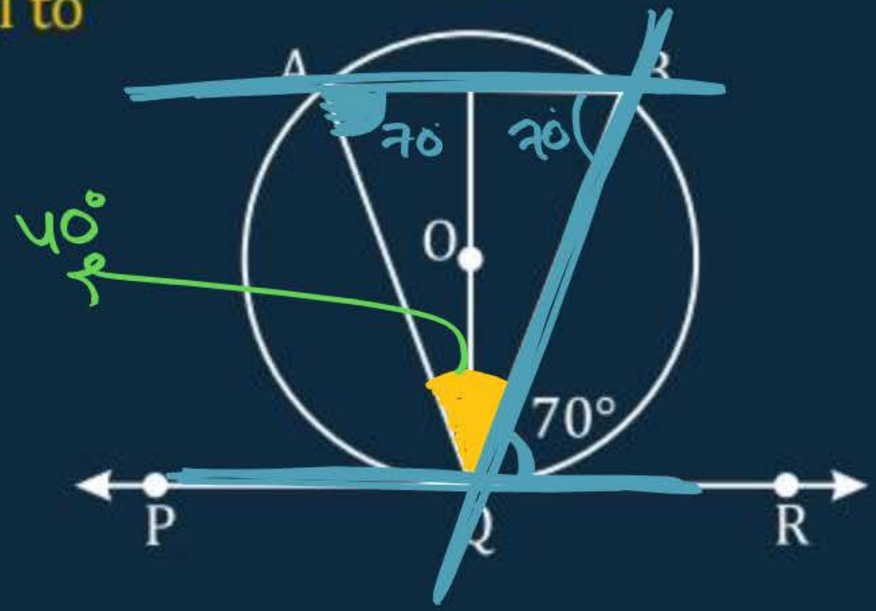
$2x = 150$

$x = 75$



Topic : Circle

#Q. In fig. if PQR is the tangent to a circle at Q whose centre is O, AB is a chord parallel to PR and $\angle BQR = 70°$, then $\angle AQB$ is equal to



A 20°

B 40°

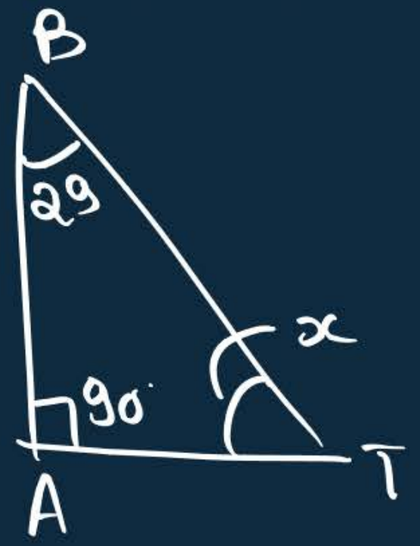
C 35°

D 45°

Topic : Circle

#Q. In fig. AB is a diameter of a circle with centre O and AT is a tangent. If $\angle AOQ = 58°$, find $\angle ATQ$.

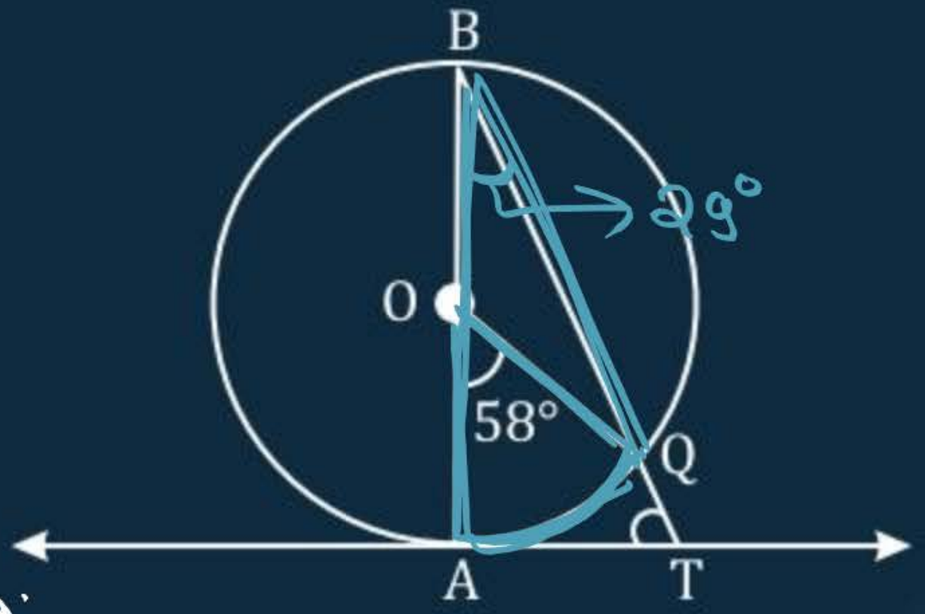
[CBSE 2015]



$29 + 90 + x = 180$

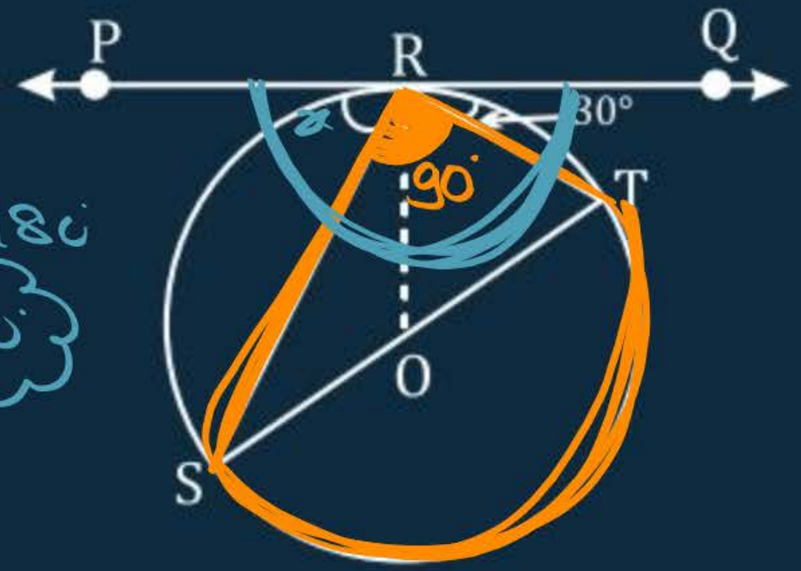
$x = 180 - 119$

$x = 61$



Topic : Circle

#Q. In fig. PQ is tangent at a point R of the circle with centre O. If $\angle TRQ = 30°$, find $m\angle PRS$.

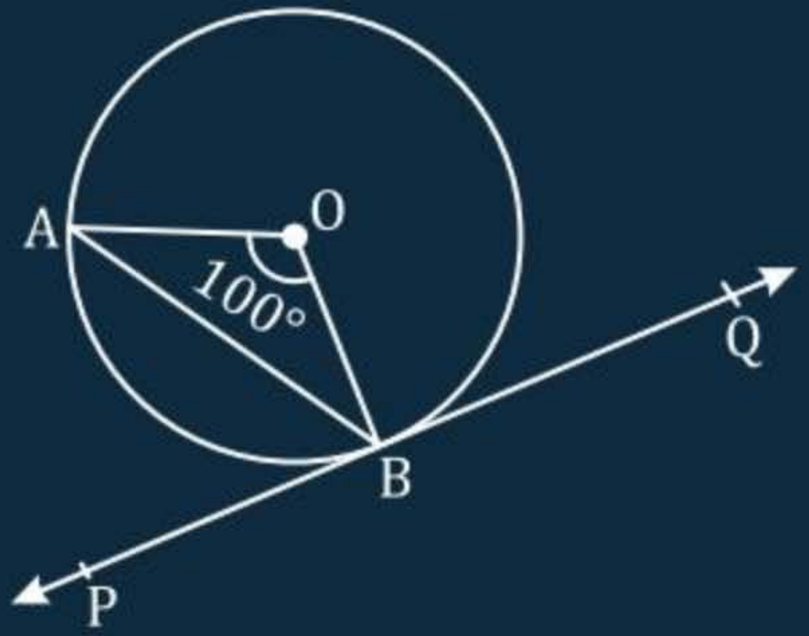


$30 + 90 + x = 180$

$x = 60$

Topic : Circle

#Q. In the given figure, PQ is tangent to the circle with centre at O, at the point B. If $\angle AOB = 100°$, then $\angle ABP$ is equal to



A $50°$

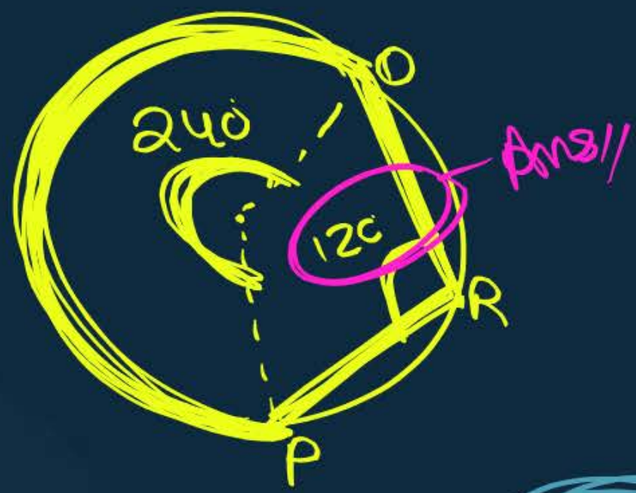
B $40°$

C $60°$

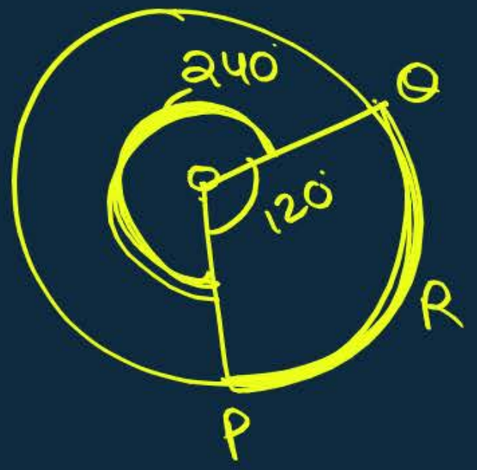
D $80°$

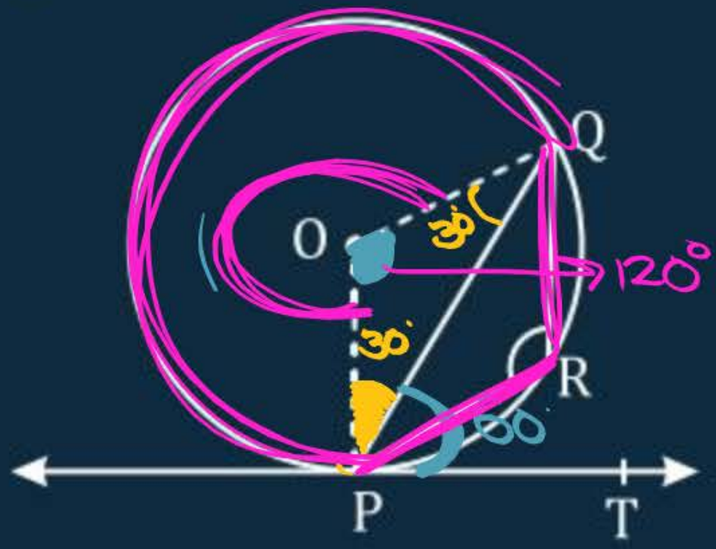
Topic : Circle

#Q. In fig. PQ is a chord of a circle centre O and PT is a tangent. If $\angle QPT = 60°$, find $\angle PRQ$.



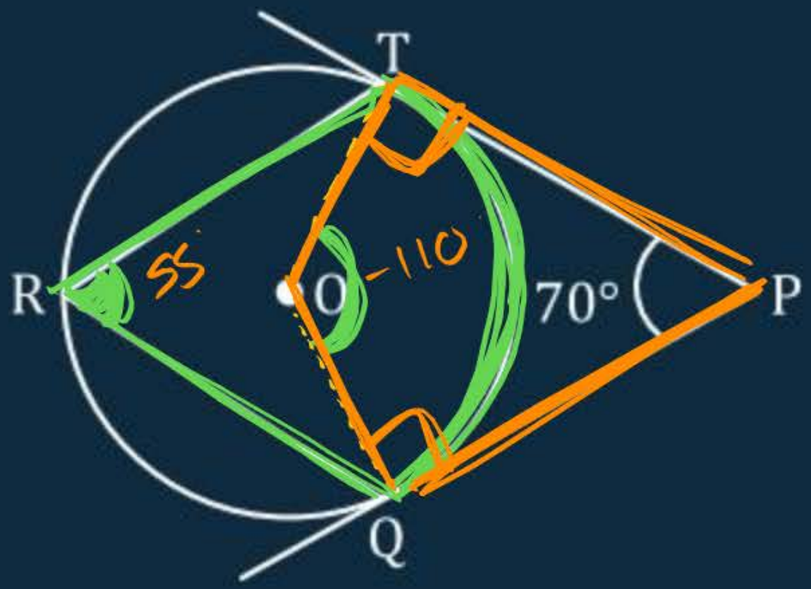
Ans)





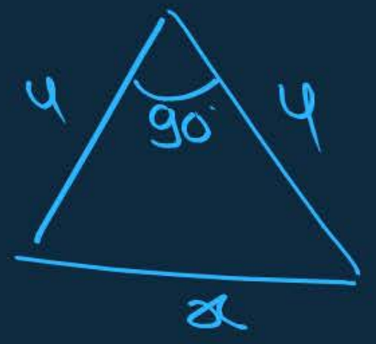
Topic : Circle

#Q. In fig., O is the centre of a circle. PT and PQ are tangents to the circle form an external point P. If $\angle TPQ = 70°$, find $\angle TRQ$.



Topic : Circle

#Q. In the given fig., PA and PB are tangents to a circle from an external point P such that PA = 4 cm and ∠BAC = 135°. Find the length of chord AB.



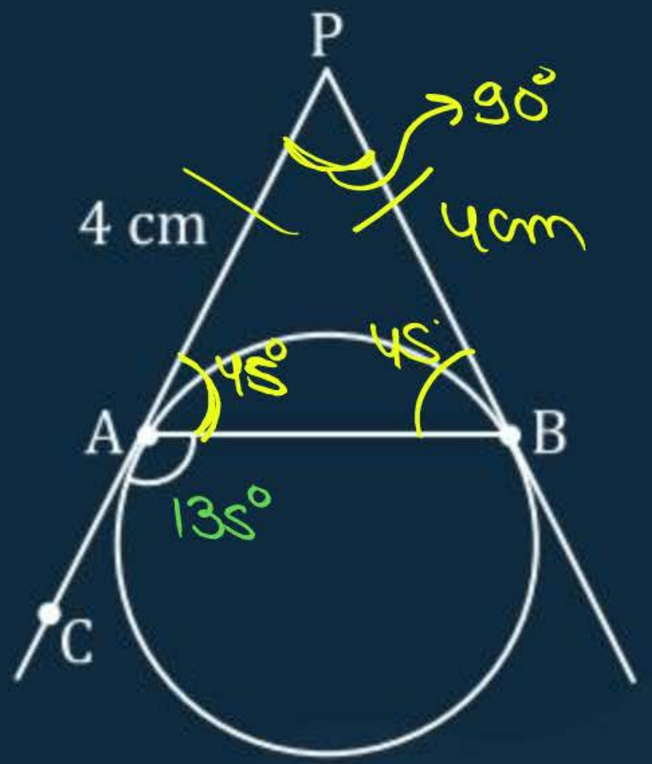
$(x)^2 = (4)^2 + (4)^2$

$x^2 = 16 + 16$

$x^2 = 32$

$x = \sqrt{32}$

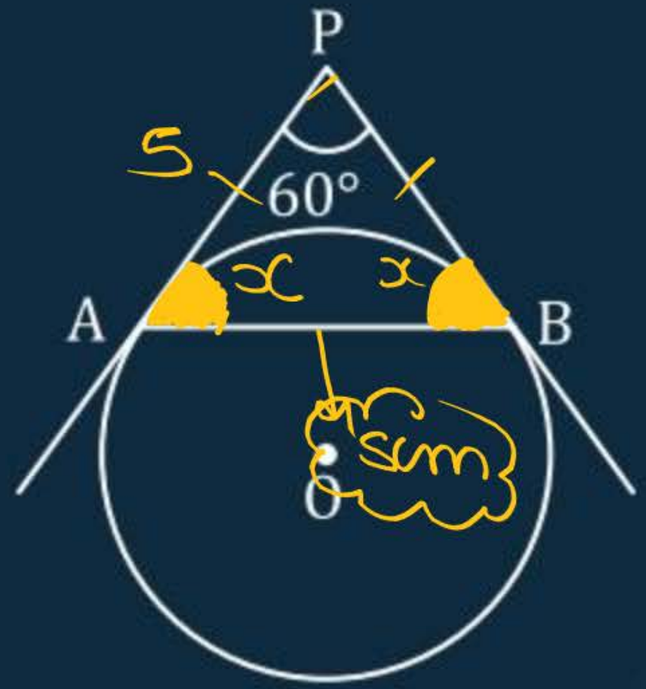
$\boxed{x = 4\sqrt{2}}$



Topic : Circle

#Q. In fig. AP and BP are tangents to a circle with centre O, such that AP = 5 cm and $\angle APB = 60°$. Find the length of chord AB.

$x = 60$



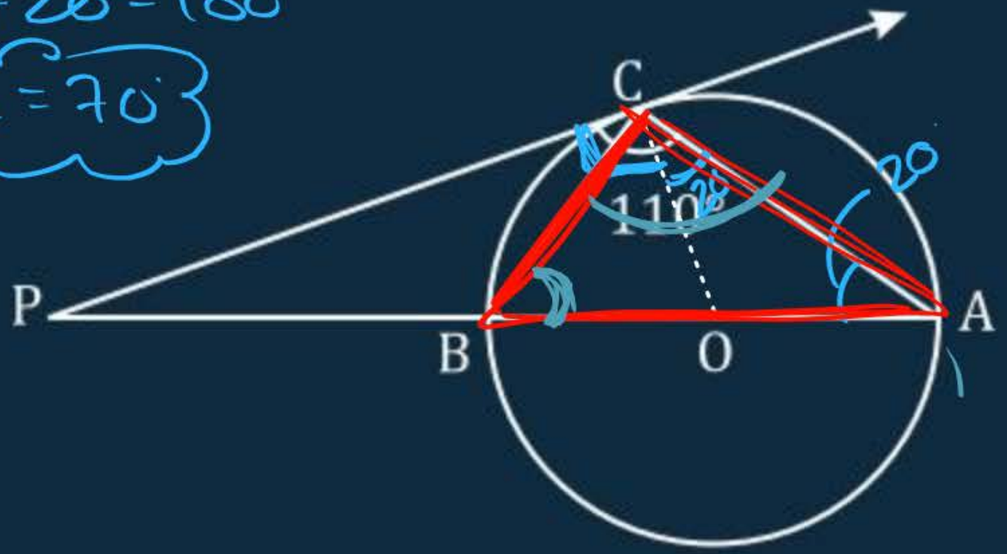
Topic : Circle

#Q. In fig., the tangent at a point C of a circle and a diameter AB when extended intersect at P. If $\angle PCA = 110°$, find $\angle CBA$. [NCERT Exemplar]

(Hint : Join CO)

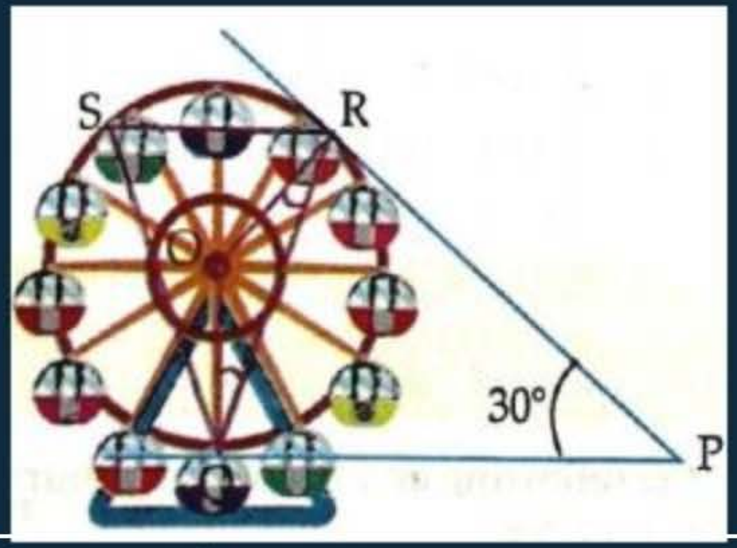
$a + 90 + 20 = 180$

$a = 70$

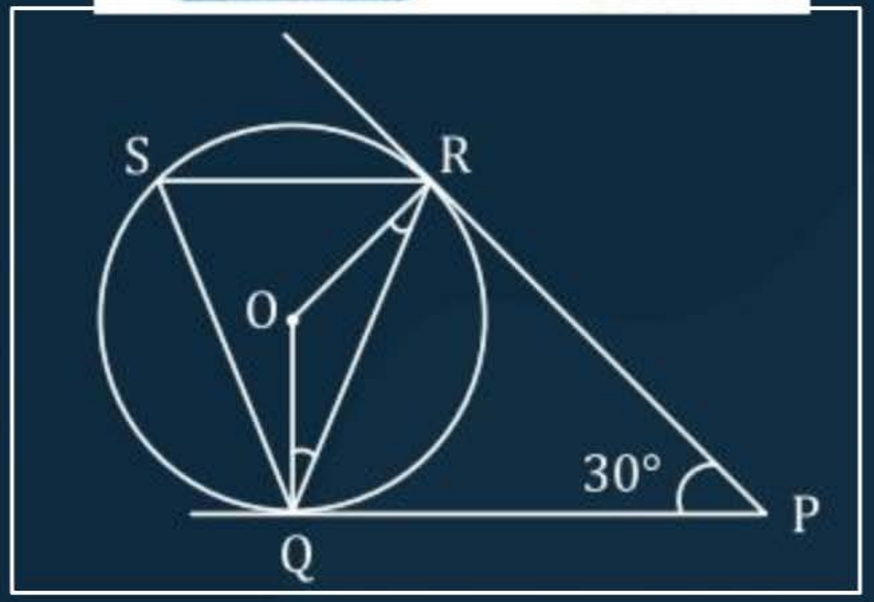


Read the passage below and answer the following questions.

A Ferris wheel (or a big wheel in the United Kingdom) is an amusement ride consisting of a rotating upright wheel with multiple passenger carrying components (commonly referred to as passenger cars, cabins, tubs, capsules, gondolas, or pods) attached to the rim in such a way that as the wheel turns, they are kept upright, usually by gravity.



After taking a ride in Ferris wheel, Aarti came out from the crowd and was observing her friends who were enjoying the ride. She was curious about the different angles and measures that the wheel will form. She forms the figure as given below. **[CBSE QB, 2021]**



Topic : Circle

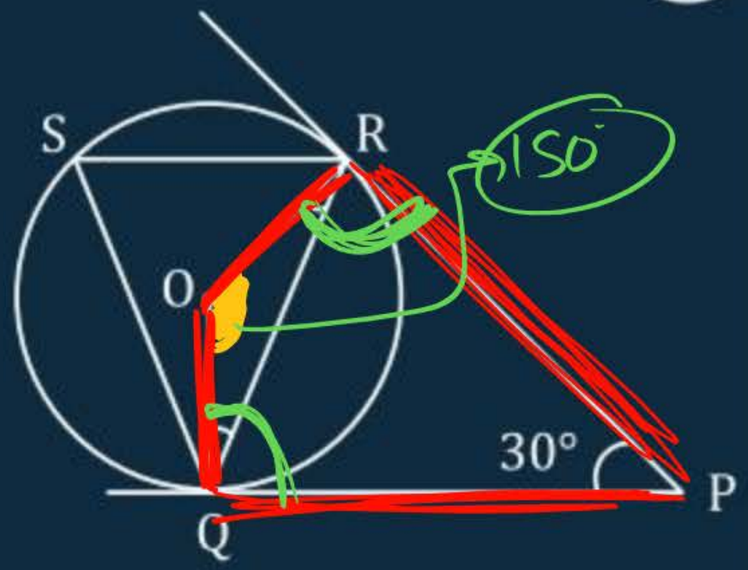
#Q. (i) In the given figure find ∠ROQ

A 60°

B 100°

C 150°

D 90°



Topic : Circle

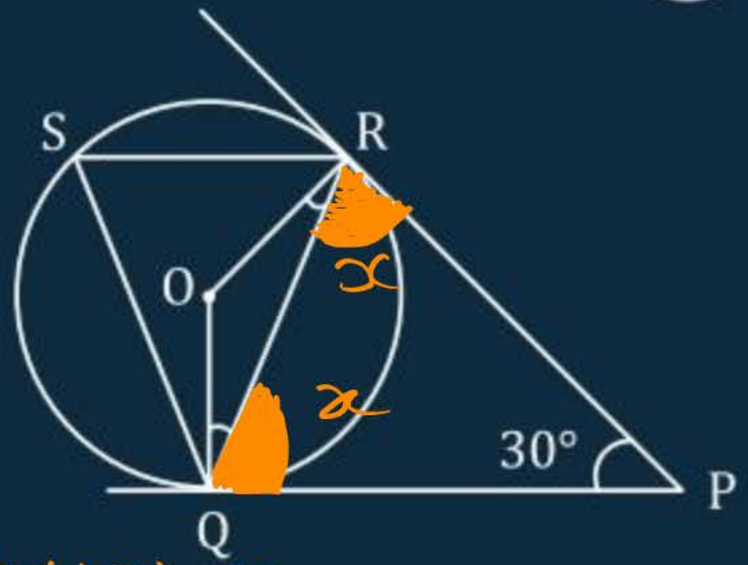
#Q. (ii) Find ∠RQP

A 75°

B 60°

C 30°

D 90°



$x + x + 30 = 180$

$2x = 150$

$x = 75$

Topic : Circle

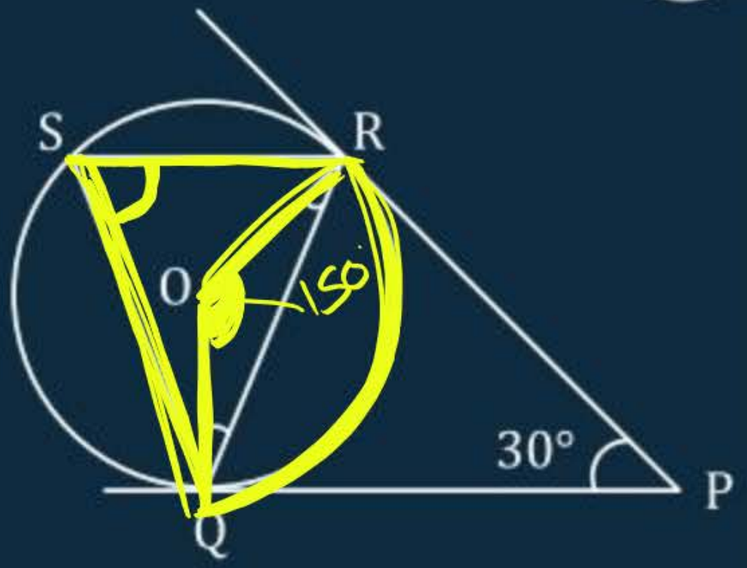
#Q. (iii) Find ∠RSQ

A 60°

B 75°

C 100°

D 30°



Topic : Circle

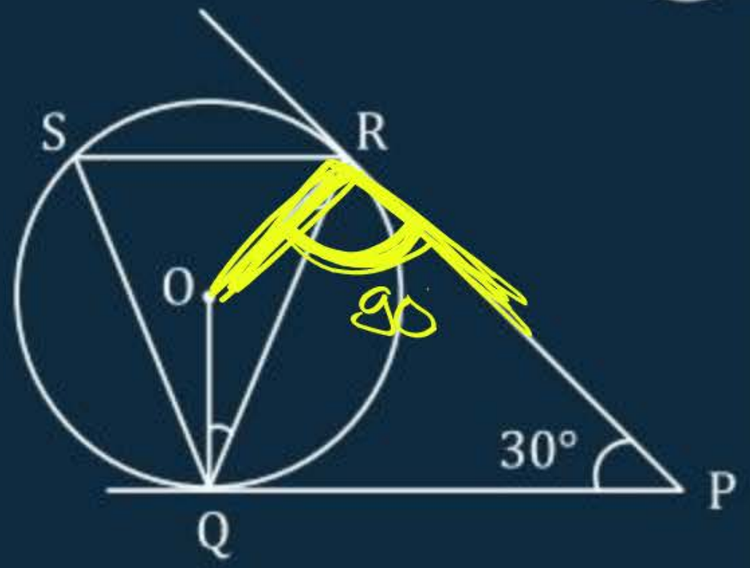
#Q. (iv) Find ∠ORP

A 90°

B 70°

C 100°

D 60°




THANK
YOU