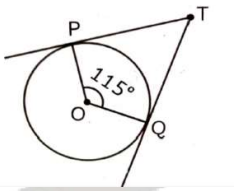
1. A tangent PQ at a point P of a circle of radius $5\,cm$ meets a line through the centre O at a point Q so, that $OQ = 12\,cm$. Then length of P Q is

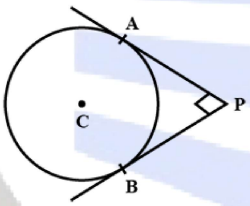
2. In the figure, TP and TQ are tangents drawn to the circle with centre at O. If $\angle POQ = 115^\circ$ then $\angle PTQ$ is:



3. From an external point Q, the length of the tangents to a circle is $5\,cm$ and the distance of Q from the centre is $8\,cm$. The radius of the circle is:

4. A chord of a circle of radius $10\,cm$ subtends a right angle at its centre. The length of the chord (in cm) is:

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

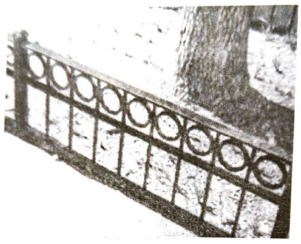


6. In the figure, from an external point p two tangents PQ and PR are drawn to a circle of radius $4\,cm$ with centre O. If $\angle QPR = 90^\circ$, the length of PQ is:

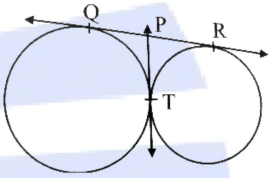
(a) $3\,cm$ (b) $4\,cm$

(c) $2\,cm$ (d) $2\sqrt{2}\,cm$

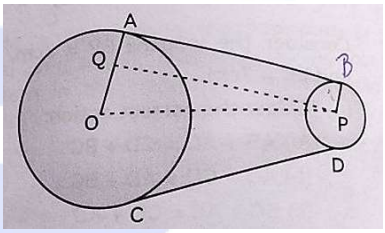
7. While walking along the boundary of the park. Sahil and his friends observed that the pattern in the railing resembles series of circles just touching each other.



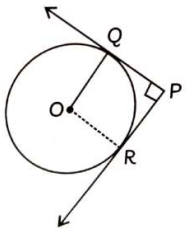
8. In the given figure, QR is a common tangent to the given circles, touching externally at the point T. The tangent at T meets QR at P. If $PT = 3.8\,cm$, then the length of Q R (in cm) is:



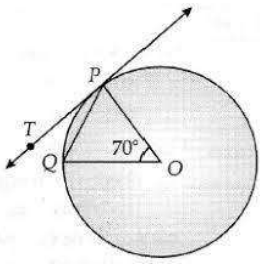
9. Let us draw direct common tangents instead of transverse common tangents, between the two circles of radii $8\,cm$ and $4\,cm$ as shown below.



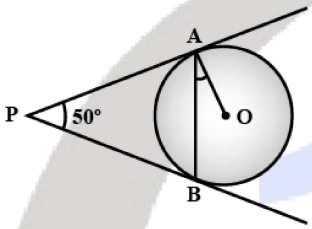
10. If the distance between their centres $OP = 16\,cm$, then the length of direct common tangent AB is



11. In the figure, O is the centre of the circle, P Q is a chord and P T is tangent to the circle at P. If $\angle POQ = 70^\circ$, find the $\angle TPQ$.



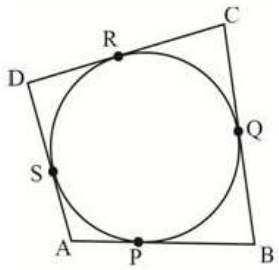
12. PA and PB are tangents to the circular dial with center O such that $\angle APB = 50^{\circ}$. Write the measure of $\angle OAB$



13. 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.

14. The lengths of tangents drawn from an external point to a circle are equal.

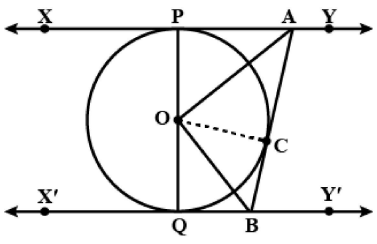
15. A quadrilateral ABCD is drawn to circumscribe a circle (see figure). Prove that AB + CD = AD + BC.



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

17. ABC is a right triangle in which $\angle B = 90°$. If AB = 8 cm and BC = 6 cm, find the diameter of the circle inscribed in the triangle.

18. In the figure, XY and MN are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and MN at B. Prove that $\angle AOB = 90^\circ$.



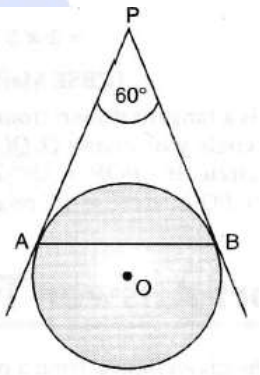
19. Prove that the tangents drawn at the end points of a chord of a circle make equal angles with the A chord.

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

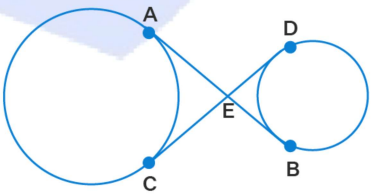
21. The incircle of an isosceles triangle A B C, in which $AB = AC$, touches the side and F respectively. Prove that $BD = DC$.

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

23. If a, b, c are the sides of a right triangle where c is the hypotenuse prove that the radius r of the circle which touches the sides of the triangle is given by $r = \frac{a+b-c}{2}$



24. In Fig, common tangents AB and CD to two circles intersect at E. Prove that $AB = CD$.



25. In Fig, PQL and PRM are tangents to the circle with centre O at the points Q and R, respectively and S is a point on the circle such that $\angle SQL = 50^\circ$ and

$\angle SRM = 60^\circ$. Then $\angle QSR$ is equal to 40°

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