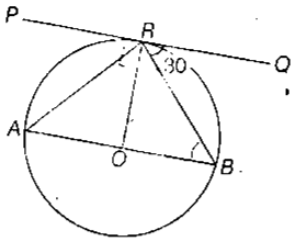
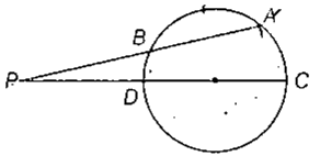
Multiple Choice Questions (1 mark each)

1. In the given figure, PQ is a tangent at point R of a circle with centre O and $\angle QRB = 30°$, then $\angle PRA$ is equal to



(a) 30° (b) 90° (c) 120° (d) 60°

2. In the following figure, if $PA = 8$ cm, $PD = 4$ cm and $CD = 3$ cm, then AB is



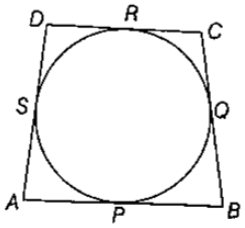
(a) 3 cm (b) 3.5 cm (c) 4 cm (d) 4.5 cm

3. If tangents QR, PR, PQ are drawn respectively at A, B, C to the circle circumscribing an acute angled ΔABC, so as to form another ΔPQR, then the $\angle RPQ$ is equal to

(a) $\angle BAC$ (b) $180° - \angle BAC$

(c) $\frac{1}{2}(180° - \angle BAC)$ (d) $180° - 2\angle BAC$

4. In the given figure, quadrilateral $ABCD$ is circumscribed touching the circle at P, Q, R and S. If $AP = 6$ cm, $BP = 5$ cm, $CQ = 3$ cm and $DR = 4$ cm, then perimeter of quadrilateral $ABCD$ is



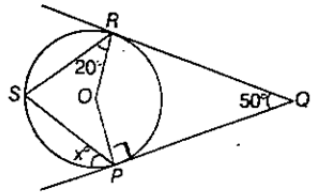
(a) 18 cm (b) 27 cm

(c) 36 cm (d) 22 cm

Short Answer Type (I) Questions (2 marks each)

5. The length of common chord of two intersecting circles is 30 cm. If the diameters of these two circles are 50 cm and 34 cm, then calculate the distance between their centres.

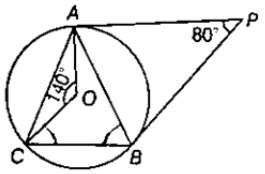
6. In the given figure, PQ and QR are tangents to the circle centre O, at P and R, respectively. Find the value of x.



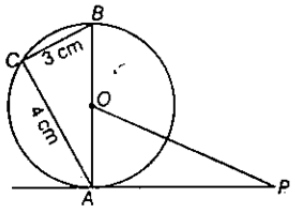
7. Two circles of radii 5 cm and 3 cm are concentric. Calculate the length of a chord of the circle which touches the inner circle.

8. A point A is 13 cm from the centre of the circle. The length of the tangent drawn from A to the circle is 12 cm. Find the radius of the circle.

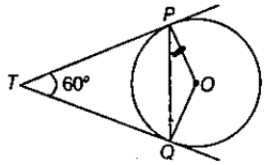
9. In given figure O is centre of the circumcircle of ΔABC. Tangents at A and B intersects P. Given $\angle APB = 80°$ and $\angle AOC = 140°$, calculate the value of $\angle CAB$.



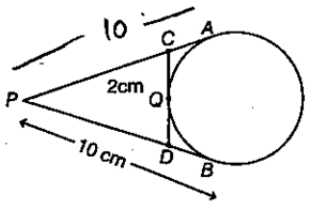
10. In the given figure, PA is a tangent to the circle with center O. If $BC = 3$ cm, $AC = 4$ cm and $\Delta ACB \sim \Delta PAO$, then find OA and $\frac{OP}{AP}$.



11. In the given figure, two tangents TP and TQ are drawn to a circle with centre O from an external point T. Find the value of $\angle OPQ$.



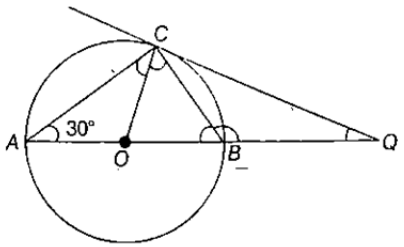
12. In the given figure. PA and PB are tangent to be drawn from an external point P. CD is a third tangent touching the circle at Q. If $PB = 10$ cm, and $CQ = 2$ cm, then find the length of PC.



Short Answer Type (II) Questions (3 marks each)

13. Prove that 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.

14. In the given figure, AB is the diameter of a circle with centre O and QC is a tangent to the circle at C. If $\angle CAB = 30°$, then find $\angle CQA$ and $\angle CBA$.

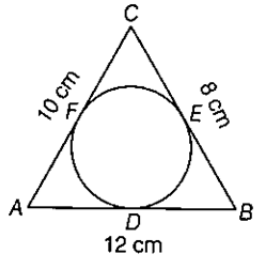


15. Two tangents PA and PB are drawn to the circle with centre O, such that $\angle APB = 120°$. Prove that $OP = 2AP$.

Long Answer Type Questions (5 marks each)

16. Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

17. A circle is inscribed in a ABC having sides 8 cm, 10 cm and 12 cm a shown in figure Find AD, BE and CF.



Answers

1. (d) **2.** (d) **3.** (d) **4.** (c) **5.** 28 cm

6. 45° **7.** 8 cm **8.** 5 cm **9.** $\angle CAB = 60°$ **10.** $OA = 2.5$ cm and $\frac{OP}{AP} = \frac{5}{4}$

11. 30° **12.** $PC = 8$ cm **14.** $\angle CQA = 30°$ and $\angle CBA = 60°$ **17.** $AD = 7$, $BE = 5$ and $CF = 3$

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