

Mathematics / Std X / CIRCLES

From CBSE Papers

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

2. In the given Fig. 10.1, PA and PB are tangents to the circle drawn from an external point P. If $PB = 10\text{ cm}$, and $CQ = 2\text{ cm}$. Find the length of PC.

Ans. 8 cm.

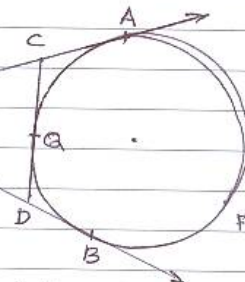


Fig. 10.1

3. The length of the tangent from a point A at a distance of 5 cm from the centre of the circle is 4 cm. What will be the diameter of the circle. Ans. 6 cm.

4.

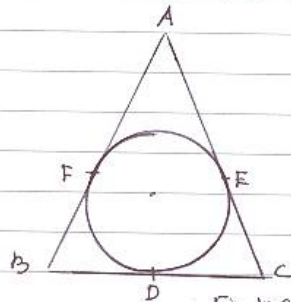


Fig. 10.2

In the given Fig. 10.2 ;

If $AB = AC$ Prove that $BD = CD$.

- Q 5. A circle touches the side BC of $\triangle ABC$ at a point P and touches AB and AC when produced at Q and R respectively. Show that $AQ = \frac{1}{2}(\text{Perimeter of } \triangle ABC)$

5. In Fig. 10.3 O and O' are centres of two circles. Prove that $PP' = QQ'$

6. ABC is an isosceles $\triangle$ in which $AB = AC$, circumscribing about a circle. Show that BC is bisected at the point of contact.

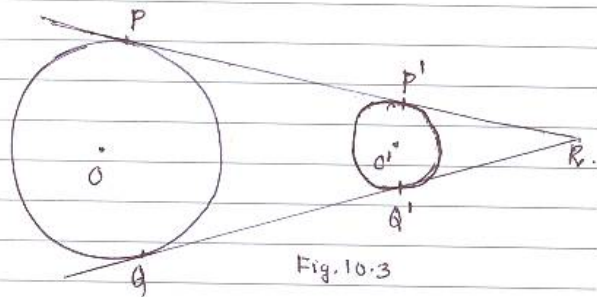


Fig. 10.3

7.

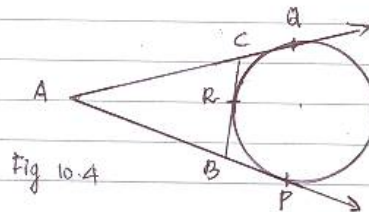


Fig. 10.4

In the given Fig. 10.4, find the perimeter of $\triangle ABC$ if $AP = 10\text{ cm}$.

- Q. 8. In the Fig. 10.4, $AP = 10\text{ cm}$ and $AC = 6\text{ cm}$. Find CR. Ans. 4.

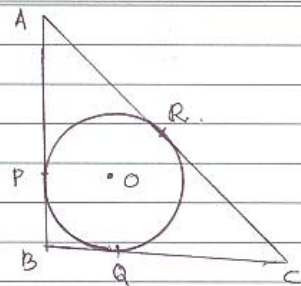
9. If a, b, c are the sides of a right $\triangle$ where 'c' is the hypotenuse. Prove that the radius r of the circle which touches the sides of the $\triangle$ is given by $r = \frac{a+b-c}{2}$

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10. In the given Fig. 10.5, $\triangle ABC$ is a right angle $\triangle$, $\angle B = 90^\circ$ such that $BC = 6\text{ cm}$ and $AB = 8\text{ cm}$. Find the radius of the circle.

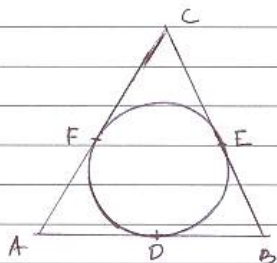
[Ans 2 cm]



11. If from an external point B a circle with centre O, two tangents BC and BD are drawn such that $\angle OBC = 120^\circ$, Prove that $BC + BD = BO$ or $BO = 2BC$

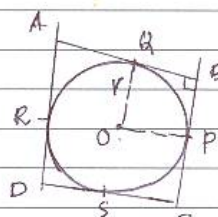
12. In the given Fig., if PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$ then $\angle OAB$ is equal to — [Ans 25°]

13. A circle is inscribed in $\triangle ABC$ having sides 8 cm, 10 cm and 12 cm as shown the Fig. Find AD, BE and CF.



- Q. 14. If all sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

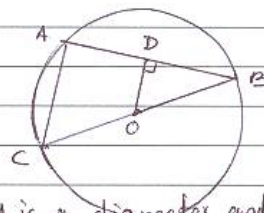
15. In the Fig., $\angle B = 90^\circ$. If $AD = 2\text{ cm}$, $AB = 29\text{ cm}$ and $DS = 5\text{ cm}$. Find the radius (r) of the circle.



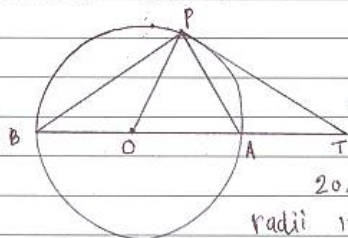
16. A quadrilateral ABCD is drawn to circumscribe a circle. If $AB = 4\text{ cm}$, $CD = 7\text{ cm}$, $BC = 3\text{ cm}$, then find AD. [Ans 8]

17. In the given Fig., OD is perpendicular to the chord AB of a circle whose centre is O. If BC is a diameter, find $\angle A$.

18. What is the distance between two parallel tangents to a circle of radius 10 cm?



19.



- In the given Fig BA is a diameter and the tangent at P meets BA extended at T. If $\angle PBO = 30^\circ$ then Find $\angle PTA$. [Ans 30°]

20. If an Two concentric circles of radii 13 cm and 5 cm. Find the length of the chord of outer circle which touches the inner circle.

[Signature]