**FREE NCERT SOLUTIONS**

CLASS - 10

CIRCLES

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**EXERCISE 10.1 - Question No. 3**

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 $OQ = 12\ cm$ . Length PQ is : (A) 12 cm (B) 13 cm (C) 8.5 cm (D) $\sqrt{119}$ cm.

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**EXERCISE 10.1 - Question No. 4**

Draw a circle and two lines parallel to a given line such that one is a tangent and the other, a secant to the circle.

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**EXERCISE 10.2 - Question No. 1**

From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm. The radius of the circle is (A) 7 cm (B) 12 cm (C) 15 cm (D) 24.5 cm

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**EXERCISE 10.2 - Question No. 2**

In Fig. 10.11, if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110o$ , then $\angle PTQ$ is equal to

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**EXERCISE 10.2 - Question No. 3**

If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of $80o$ , then $\angle POA$ is equal to

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**EXERCISE 10.2 - Question No. 4**

Prove that the tangents drawn at the ends of a diameter of a circle are parallel.

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**EXERCISE 10.2 - Question No. 5**

Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre.

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**EXERCISE 10.2 - Question No. 6**

The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4cm. Find the radius of the circle.

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**EXERCISE 10.2 - Question No. 7**

Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

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**EXERCISE 10.2 - Question No. 8**

A quadrilateral ABCD is drawn to circumscribe a circle. Prove that $AB + CD = AD + BC$

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**EXERCISE 10.2 - Question No. 9**

In Fig. 10.13, $XY$ and $X'Y'$ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting $XY$ at A and $X'Y'$ at B. Prove that $\angle AOB = 90o$

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**EXERCISE 10.2 - Question No. 10**

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.

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**EXERCISE 10.2 - Question No. 11**

Prove that the parallelogram circumscribing a circle is a rhombus.

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**EXERCISE 10.2 - Question No. 12**

A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC.

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**EXERCISE 10.2 - Question No. 13**

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

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**SOLVED EXAMPLES - Question No. 1**

Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

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**SOLVED EXAMPLES - Question No. 2**

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

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**SOLVED EXAMPLES - Question No. 3**

PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.

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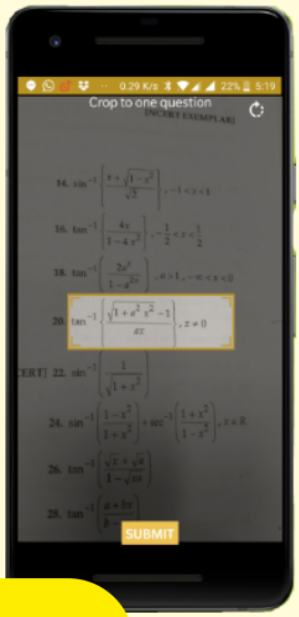

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