

# MATHS

## BOOKS - SWAN PUBLICATION

### CIRCLES

#### Exercise 10 1

1. How many tangents can a circle have ?



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2. 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.  $8 \cdot 5$  cm

D.  $\sqrt{119}$  cm

**Answer: D**



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



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## Exercise 10 1 Fill In The Blanks

1. Fill in the blanks : A tangent to a circle intersects it in ..... point(s).



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2. Fill in the blanks : A line intersecting a circle in two points is called a...



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3. Fill in the blanks : A circle can have..... parallel tangents at the most.



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4. Fill in the blanks : The common point of a tangent to a circle and the circle is called.....



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## Exercise 10 2

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.  $24 \cdot 5$  cm

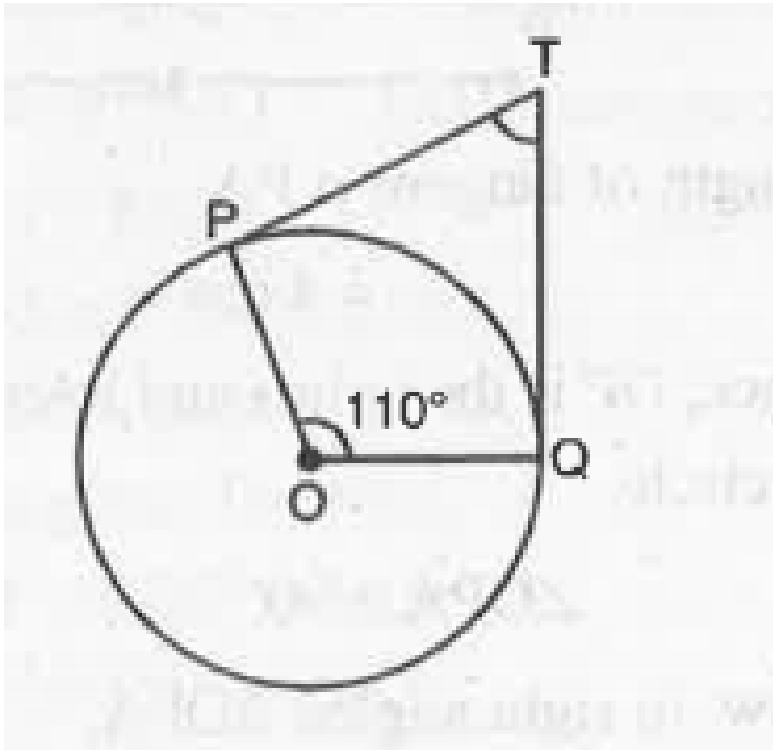
**Answer: A**



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2. In Fig., if TP and TQ and two tangents to a circle with centre O so that  $\angle POQ = 110^\circ$ , then

ZPTQ is equal to



A.  $60^\circ$

B.  $70^\circ$

C.  $80^\circ$

D.  $90^\circ$

**Answer: B**



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

A.  $50^\circ$

B.  $60^\circ$

C.  $70^\circ$

D.  $80^\circ$



**Answer: A**



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



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



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



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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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8. A quadrilateral ABCD is drawn to circumscribe a circle(seeFig).Prove that

$$AB + CD = AD + BC$$

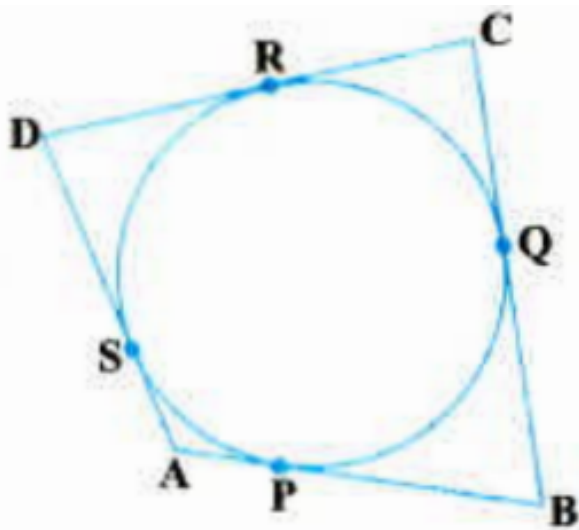


Fig. 10.12



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**9.** 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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**10.** In Fig, 10.13,  $XY$  and  $X'Y'$  are two parallel tangents to a circle with centre  $O$  and another tangent  $AR$  with point of contact  $C$

intersecting  $XY$  at  $A$  and  $X'Y'$  at  $B$ . Prove that

$$\angle AOB = 90^\circ.$$

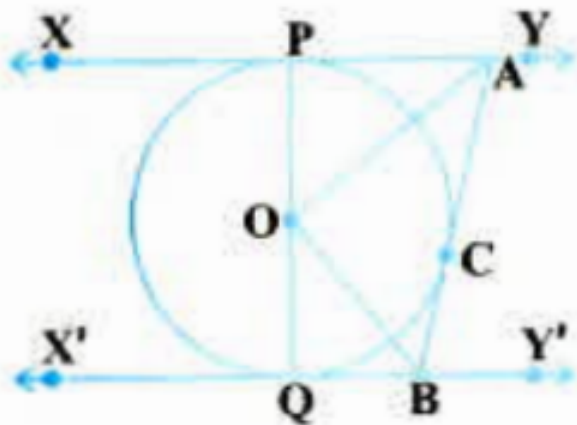


Fig. 10.13



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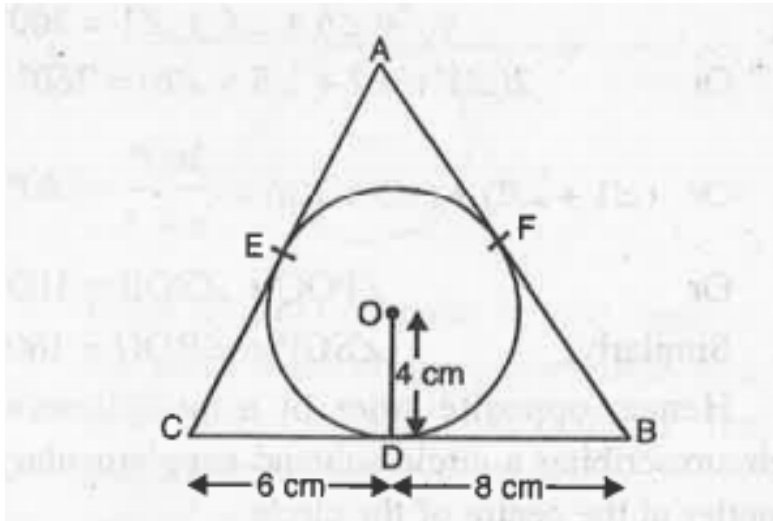
**11.** Prove that the parallelogram circumscribing a circle is a rhombus.



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**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 (see Fig). Find the sides AB and

AC.



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



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