MATHS

BOOKS - OSWAAL PUBLICATION

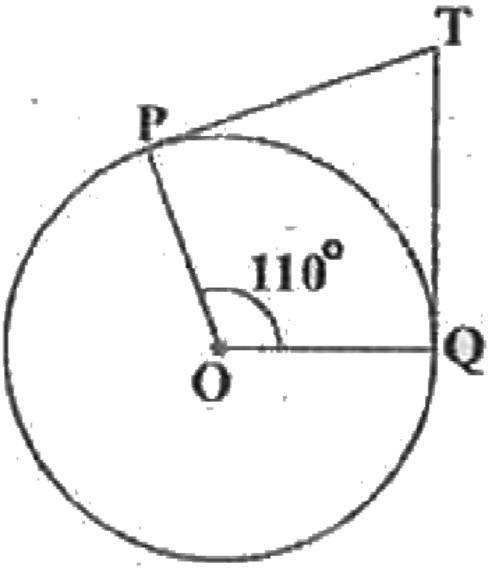
MATHS (KANNADA ENGLISH)

CIRCLES

Multiple Choice Questions

1. In the Fig, if TP and TQ are the two tangents to a circle with centre O so that

$\angle POQ = 110^\circ$, then $\angle PTQ$ is equal to



A. 90°

B. 110°

C. 70°

D. 40°

Answer: C

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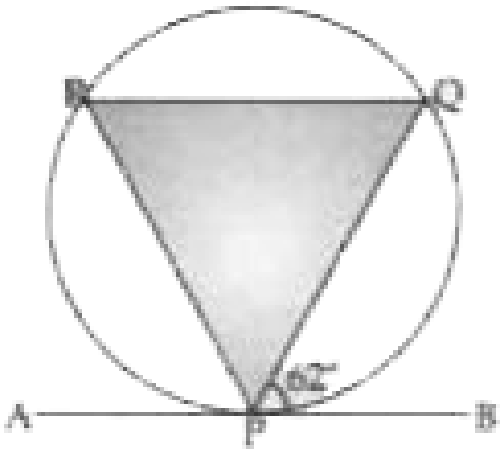
2. In the given figure ,APB is tangent of the circle at the point P on the circle.PQ is a chord .If $\angle BPQ = 62^\circ$,then $\angle PQR$ is equal to :



A. 28°

B. 118°

C. 124°

D. 62°

Answer: D

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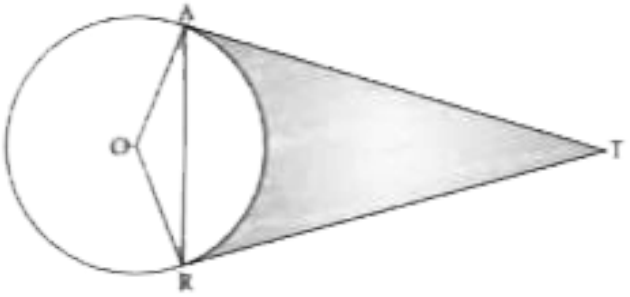
3. In the figure O is the centre of the circle .AT and BT are the tangents at points A and B respectively.IF $\angle OAB = 30^\circ$,then the

measure of $\angle ATB$ is



A. 30°

B. 15°

C. 60°

D. 90°

Answer: C

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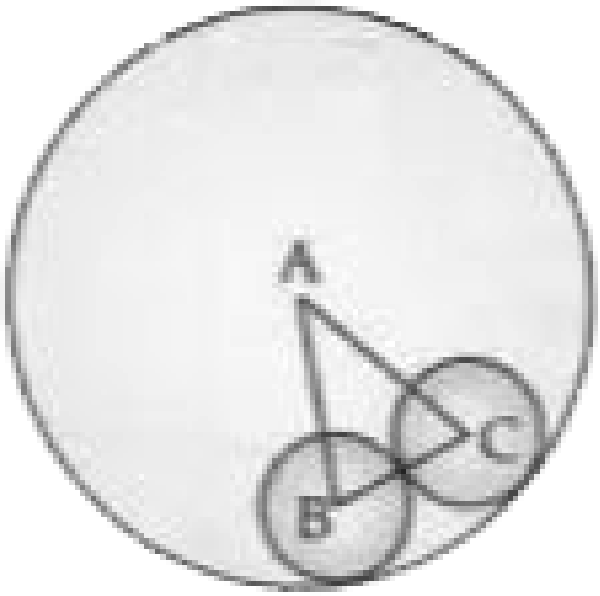
4. Three circles with centres A,B and C touch each other as shown in the figure .If the radii of these circle are 8cm ,3cm and 2cm respectively,then the perimeter of ΔABC is :



A. 13 cm

B. 16 cm

C. 3 cm

D. 26 cm

Answer: B

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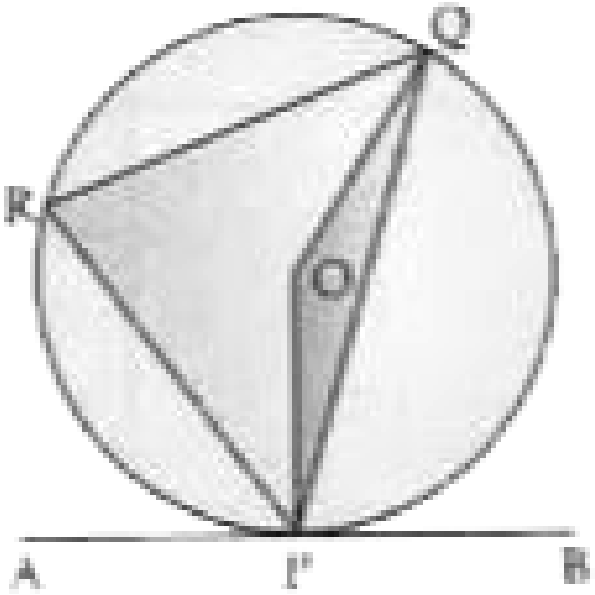
5. In the given given figure ,APB is tangent at P to circle with centre O.If $\angle QPB = 60^\circ$,then

the measure of $\angle POQ$ is:



A. 60°

B. 30°

C. 120°

D. 90°

Answer: C

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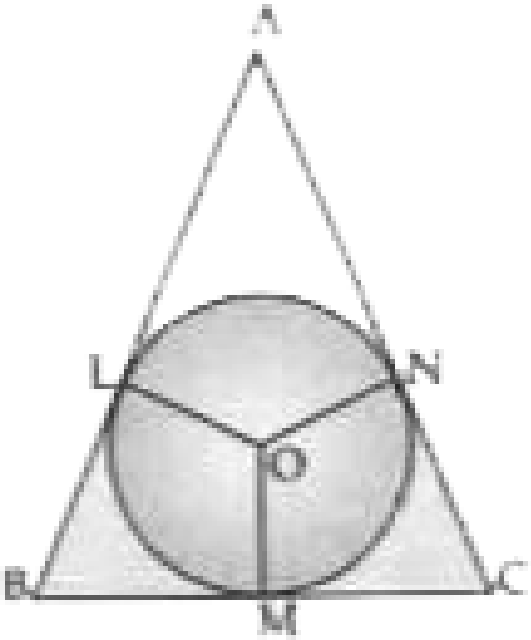
6. In the given figure ,AB,BC and AC touch the circle at L,M and N respectively .If $\angle B = 70^\circ$ and $\angle C = 60^\circ$,then the measure of $\angle LON$ is

:



A. 50°

B. 110°

C. 120°

D. 130°

Answer: D

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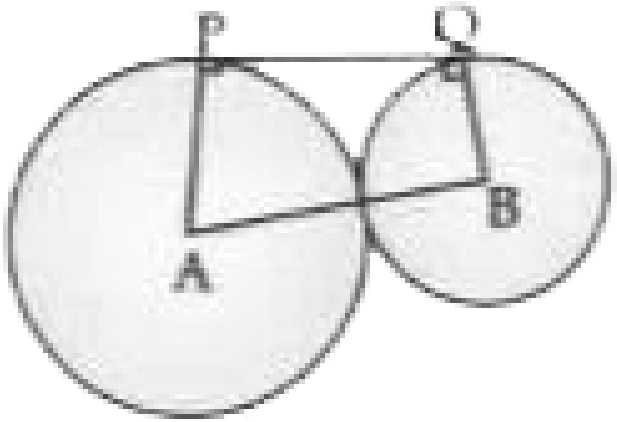
7. Two circle of radii 8 cm and 5 cm with their centres A and B touching each other externally is shown in the figure below.The length of direct common tangent PQ is:



A. $16\sqrt{10}cm$

B. $4\sqrt{10}cm$

C. $10\sqrt{16}cm$

D. $2\sqrt{10}cm$

Answer: B

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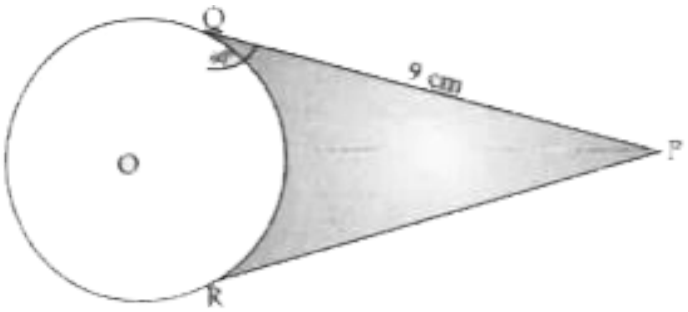
8. Tangents PQ and PR are drawn to a circle from an external point P.If PQ=9 cm and $\angle PQR = 60^\circ$,then the length of the chord

QR Is:



A. 4.5 cm

B. 6 cm

C. 9cm

D. 18 cm

Answer: C

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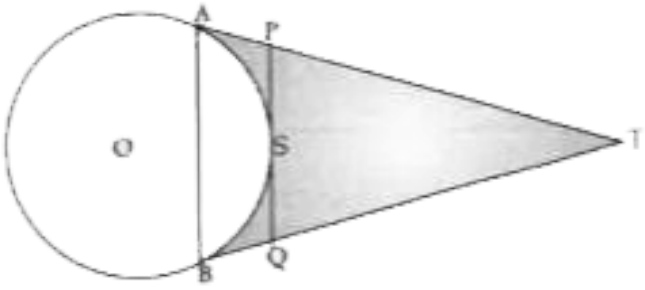
9. In the given figure ,TA and TB tangents drawn from the external point T.PQ is another tangent at S.If the perimeter of ΔPTQ is 20 cm .then the length of AT is :



A. 8 cm

B. 10cm

C. 16 cm

D. 20 cm

Answer: B

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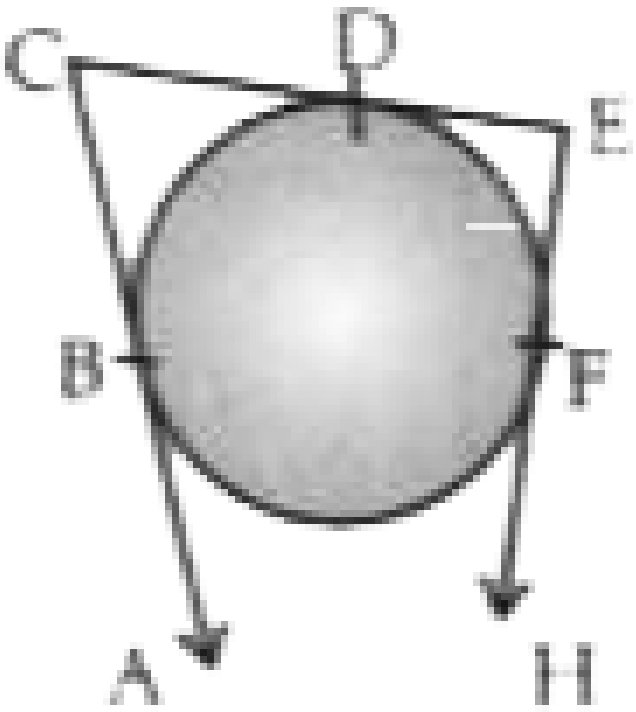
10. In the given figure AC,CE and EH are tangents drawn to the circle at B,D and F respectively.IF CB=5 cm.and EF=3 cm,then the

length of CE is:



A. 2cm

B. 5cm

C. 3cm

D. 8cm

Answer: D

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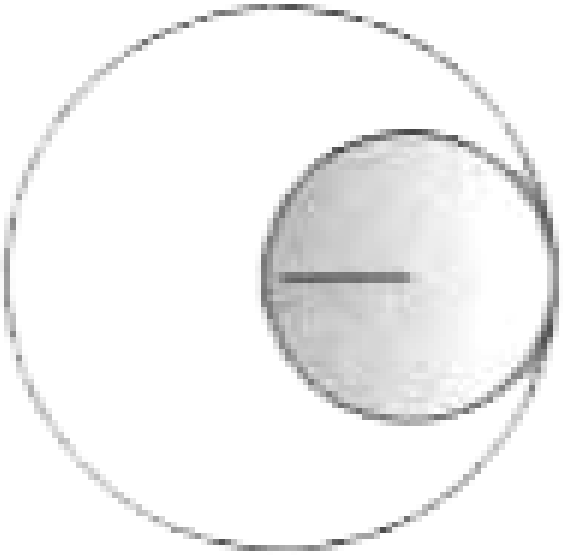
11. Two circle of radii 5m and 3cm touch each other as shown in the figure .The distance

between their centres is:



A. 8cm

B. 2cm

C. 5cm

D. 3cm

Answer: B

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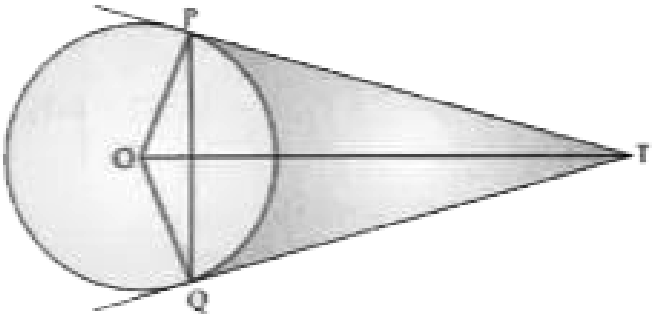
12. In the given TP and TQ are tangents drawn to the circle with centre O.If $\angle PTQ = 40^\circ$,then $\angle OPQ$ is:



A. 40°

B. 30°

C. 20°

D. 10°

Answer: C

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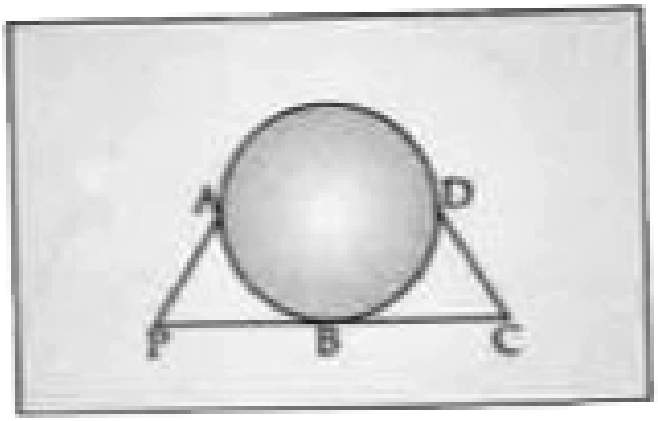
13. In the figure ,AP,PC and CD are the tangents to the circle.If the AP=3 cm and PC =8cm ,then

the length of the tangent CD is:



A. 3cm

B. 8 cm

C. 5 cm

D. 11 cm

Answer: C

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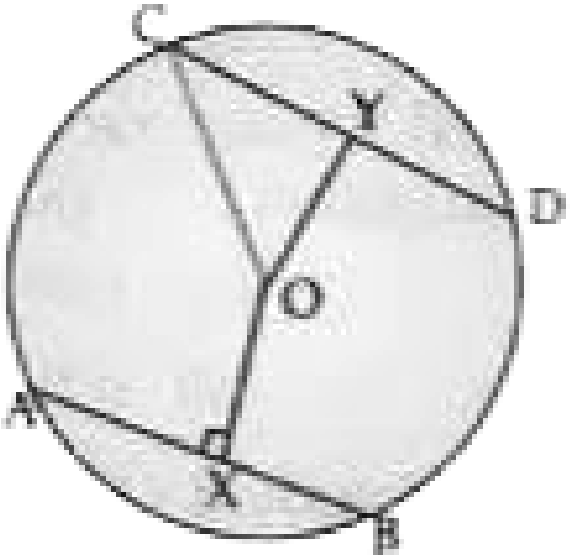
14. In the given figure,chord AB =chord CD=8cm and OX=3cm ,Radius OC=



A. 8 cm

B. 5 cm

C. 4 cm

D. 3 cm

Answer: B

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15. The length of the tangent drawn to a circle of radius 3cm from 5cm away from the centre is

A. 3 cm

B. 8 cm

C. 2 cm

D. 4 cm

Answer: D

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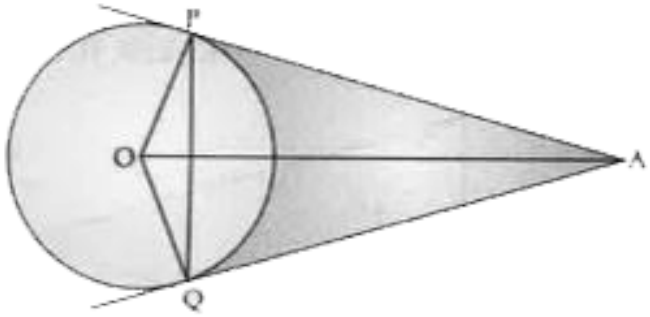
16. In the given figure if $\angle PAO = 30^\circ$, then the measure of $\angle POQ$ is :



A. 60°

B. 120°

C. 90°

D. 30°

Answer: B

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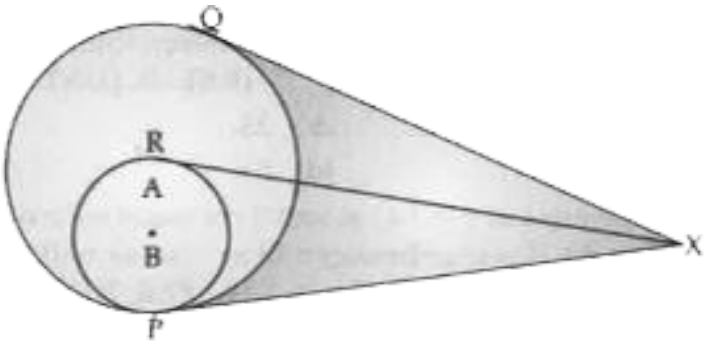
17. In the figure ,XP,XQ and XR are tangents to the circles.If the length of XQ =9 cm ,then the length of tangent XR is :



A. 18 cm

B. 10 cm

C. 9 cm

D. 12 cm

Answer: C

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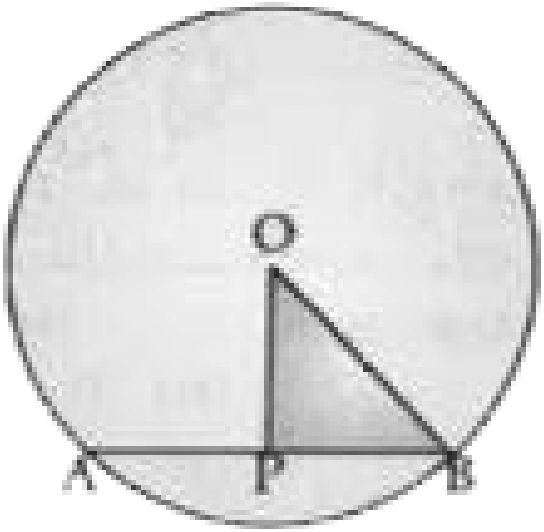
18. In a circle of radius 10 cm,O is the centre , $OP \perp AB$ If OP=6cm,then the length of chord AB is:



A. 8 cm

B. 12 cm

C. 20 cm

D. 16 cm

Answer: D

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19. If two circles of Radii 4.5 cm and 3-5 cm are touching externally,then distance between their centres is :

A. 8.0 cm

B. 1.0 cm

C. 7.0 cm

D. 7.5 cm

Answer: A

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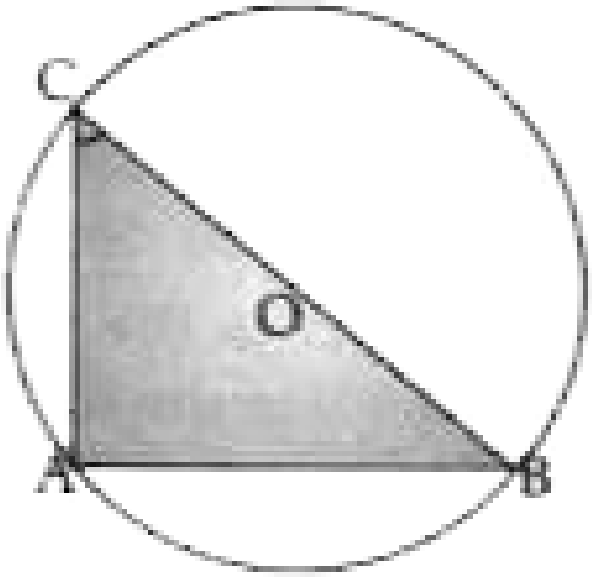
20. O is the centre of a circle ,AB is a chord .From the figure ,$\angle ACB$ is:



A. 90°

B. Less than 90°

C. Greater than 90°

D. 180°

Answer: B

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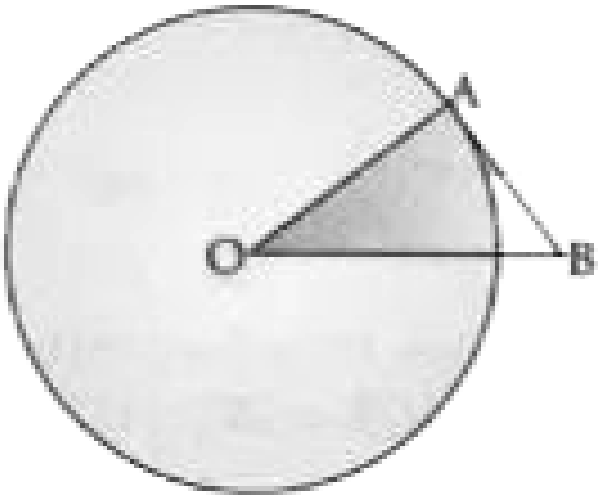
21. In the figure ,AB tangent to the circle with centre O.If $\angle AOB = 30^\circ$,then $\angle A$ and $\angle B$ respectively are:



A. $75^\circ, 75^\circ$

B. $100^\circ, 50^\circ$

C. $80^\circ, 70^\circ$

D. $90^\circ, 60^\circ$

Answer: D

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22. In the figure ,AB,AC and BD are the tangents as shown in the figure,IF

AB=xcm,BD=ycm ,then AC is equal to:

A. x cm

B. y cm

C. (x-y) cm

D. $(X + y)cm$

Answer: C

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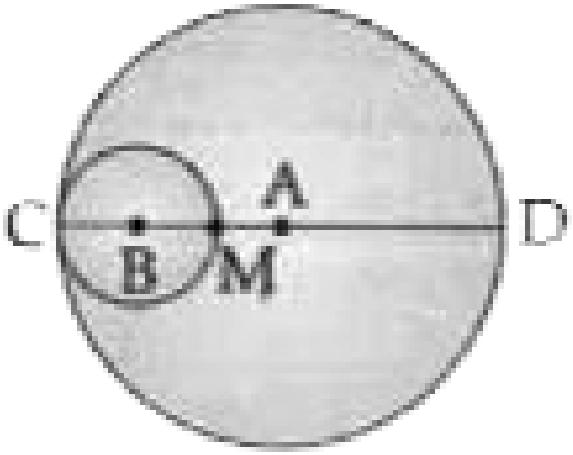
23. In the figure ,A and B are the centres of two circles with radii 6 cm and 2 cm respectively .CD is the diameter then MD is equal to :



A. 8 cm

B. 6 cm

C. 4 cm

D. 2 cm

Answer: A

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24. AB and CD are two equal and parallel chords in a circle.If the distance from the

centre of the circle to the chord AB=2x units,then the distance between the chords is:

A. 4x units

B. 2x units

C. x units

D. 1 unit

Answer: A

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25. $\angle ABC$ is an angle in a major arc.Then $\angle ABC$ is:

A. Obtuse angle

B. Right angle

C. Acute angle

D. Straight angle

Answer: C

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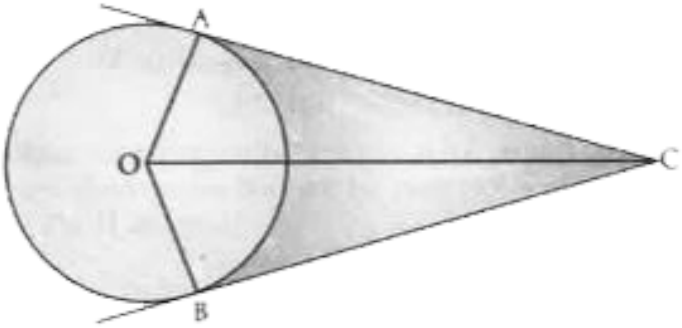
26. In the given figure ,O is the centre of the cirecle.AC and BC are the tangents.If $\angle BOC = 65^\circ$,then $\angle ACO$ is :



A. 25°

B. 35°

C. 65°

D. 115°

Answer: A

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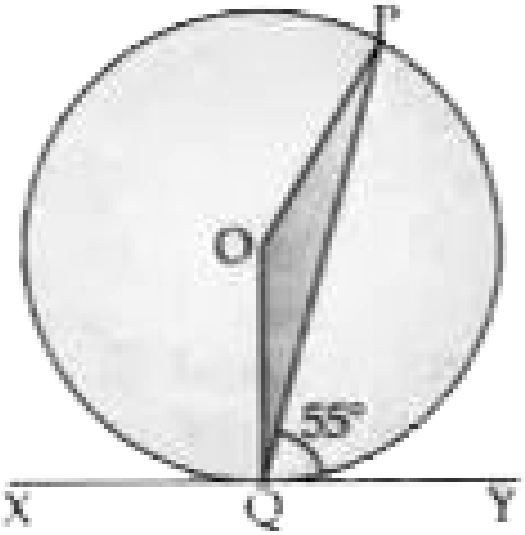
27. IN the given figure ,O is the centre of the circle.XY is a tangent.If $\angle PQY = 55^\circ$, $\angle OPQ$

is:



A. 125°

B. 120°

C. 110°

D. 35°

Answer: D

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28. Two circle touch each other internally.The distance between their centres is 1.5 cm.IF the radius of one circle is 3.5 cm,then the radius of the other circle is:

A. 5 cm

B. 4 cm

C. 3cm

D. 2.5 cm

Answer: A

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29. ΔPQR is inscribed in a circle such that QR is diameter,If $\angle Q = 35^\circ$,then $\angle R$=

A. 90°

B. 55°

C. 45°

D. 35°

Answer: B

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30. Radii of twi concentre circles 8 cm a and 10 cm respectively.The length of the greatest chord which is tangent to the inner circle is:

A. 6cm

B. 8cm

C. 12xm

D. 20cm

Answer: C

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31. In two concentric circle of radii 6cm and 10cm with centre O,OP is the radius of the smaller circle.OPbotAB,AB` cuts the outer circle at A and B then the length of AB is:

A. 8cm

B. 16cm

C. 4cm

D. 20cm

Answer: B

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32. The angle formed by the radius at the point of contact with a tangent is:

A. 30°

B. 180°

C. 90°

D. 60°

Answer: C

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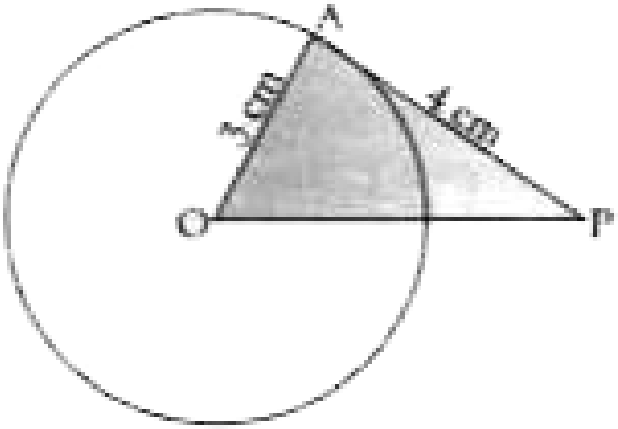
33. In the figure ,the length of OP is:



A. 5cm

B. 4cm

C. 3cm

D. 25cm

Answer: A

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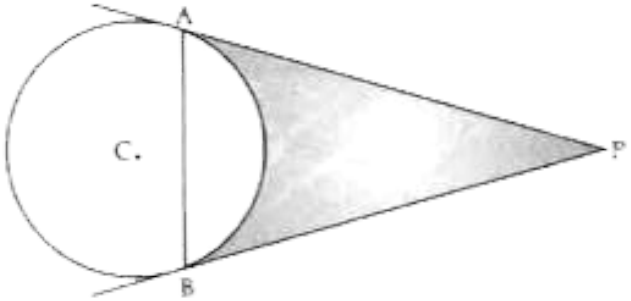
34. In the figure ,if PA and PB are tangents and AB=AP,then $\angle APB$ is:



A. 30°

B. 90°

C. 45°

D. 60°

Answer: D

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35. If two circle of radii 9 cm and 4 cm are touching internally,then the distance between their centres in cm is:

A. 13

B. 36

C. 8

D. 5

Answer: D

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36. Two circles of radii 4 cm and 3cm touch each other then the distance between their centres will be:

A. 7cm

B. 1cm

C. Either 7cm or 1cm

D. 0cm

Answer: C

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37. Three circles of radii 4 cm ,3cm and 2cm touch each other externally.The perimeter of the triangle formed by joining their centre is:

A. 9cm

B. 15 cm

C. 18 cm

D. 12 cm

Answer: C

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38. A tangent of length 16 cm is drawn to a circle at a distance of 20 cm away from the centre of the circle.The radius of the circle is:

A. 12 cm

B. 16 cm

C. 20 cm

D. 8 cm

Answer: A

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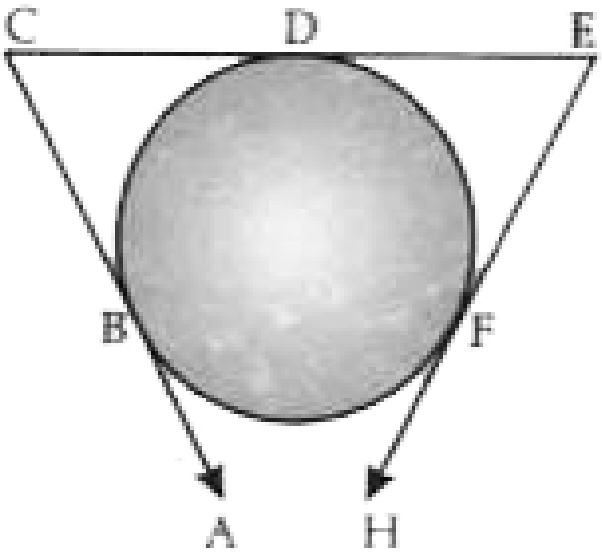
39. AC,CE,EH are tangents drawn to the circles at B,D and F respectively.If CE=10 cm and

DE=3.5 cm,then EF is equal to :



A. 6.5 cm

B. 3.5 cm

C. 10 cm

D. 5 cm

Answer: B

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40. For a circle of radius 5 cm two tangents $\overline{P}A$ and $\overline{P}B$ are drawn from a point P.If PA=12 cm and $\angle PAB = 60^\circ$,then the length of $\overline{A}B$ is:

A. 10cm

B. 12cm

C. 2.5 cm

D. 6cm

Answer: B

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41. Two circles of radii 6.9 cm and 2.8 cm touch each other externally.Then the distance between their centres is:

A. 3.45 cm

B. 1.4 cm

C. 4.1 cm

D. 9.7 cm

Answer: D

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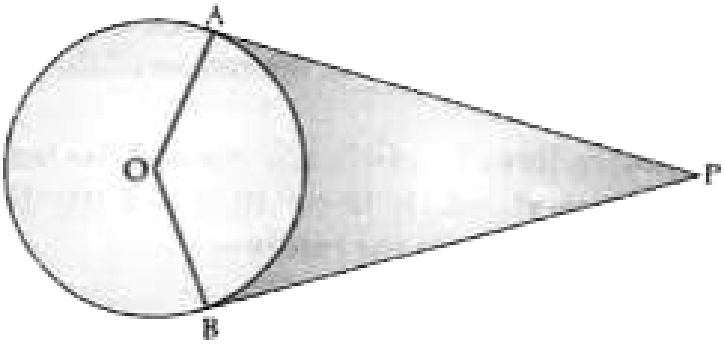
42. $\overline{P}A$ and $\overline{P}B$ are the tangents to a circle,with centre O as shown in figure.IF $\angle AOB = 140^\circ$,then the measure of $\angle APB$

is:



A. $40^\circ cm$

B. $20^\circ cm$

C. $90^\circ cm$

D. $140^\circ cm$

Answer: A

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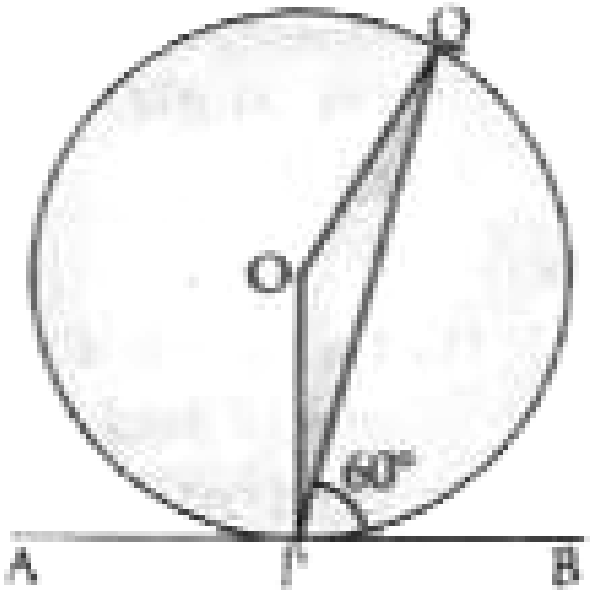
43. APB is tangent at P to the circle with centres O.If $\angle QPB = 60^\circ$,then $\angle POQ$ is :



A. 120°

B. 90°

C. 100°

D. 60°

Answer: A

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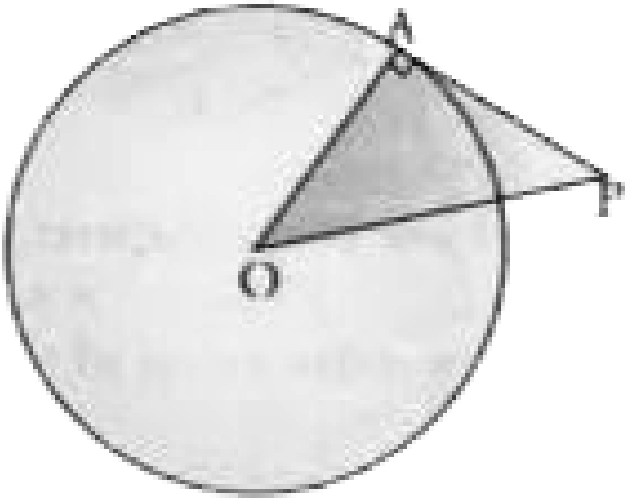
44. AP is the tangent to a circle with centre O as shown in the figure .IF $\angle P = 45^\circ$ and

radius of the circle is 5cm,then OP is equal to :



A. 5cm

B. 10cm

C. 9cm

D. $5\sqrt{2}cm$

Answer: D

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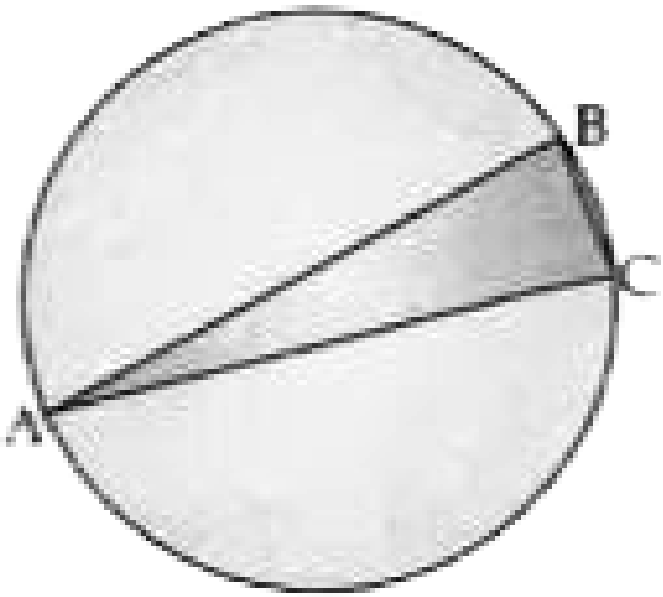
45. In the figure ,AC is a diameter ,$\angle A = 35^\circ$

the $\angle C$ is equal to:



A. 90°

B. 35°

C. 70°

D. 55°

Answer: D

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46. In a circle of radius 5 cm,the distance of chord of length 8 cm from the centre is:

A. 4cm

B. 13cm

C. 2.5cm

D. 3cm

Answer: D

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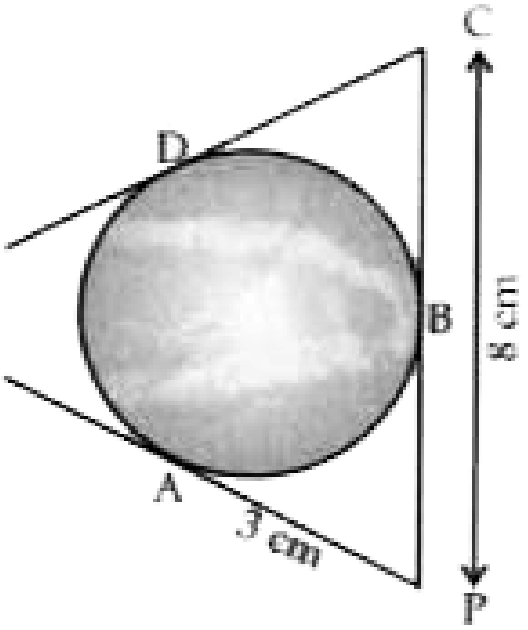
47. In the figure ,AP=3cm and PC=8 cm,then the length of the tangent CD is :



A. 11 cm

B. 5 cm

C. 7cm

D. 8cm

Answer: B

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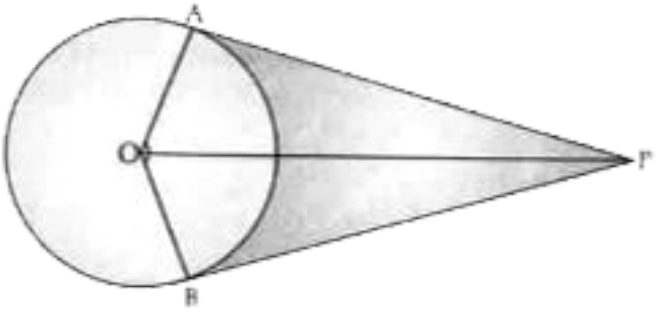
48. In the figure ,PA and PB are the tangents and $\angle AOB = 140^\circ$.Then the measure of $\angle APO$ is:



A. 90°

B. 40°

C. 20°

D. 180°

Answer: C

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49. A tangent is drawn to a circle of radius 8 cm from a point which is at a distance of 10 cm from the centre of the circle.Then the length of the tangent is:

A. 8 cm

B. 18 cm

C. 2cm

D. 6cm

Answer: D

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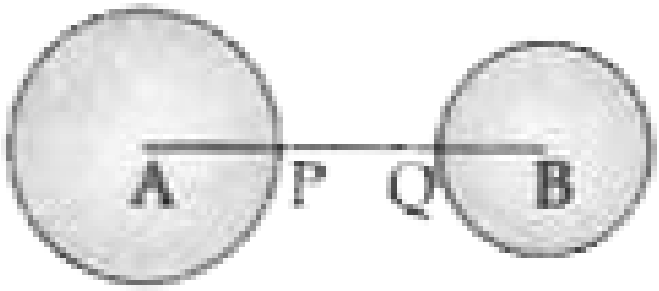
50. Two circular dises of radii 4.5 cm and 2 cm are fixed to astring of length 10 cm as shown.Then the diameter of another disc

which touches the circular dises at P and Q is:



A. 6.5 cm

B. 2.5 cm

C. 1.75 cm

D. 3.5 cm

Answer: D

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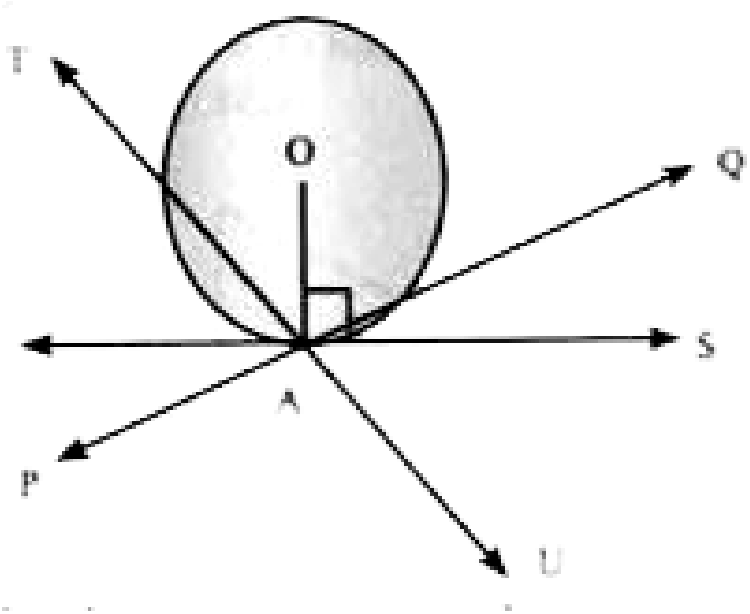
Very Short Answer Type Questions

1. Identify then tangent to the circle in the adjoining figure and write its name.



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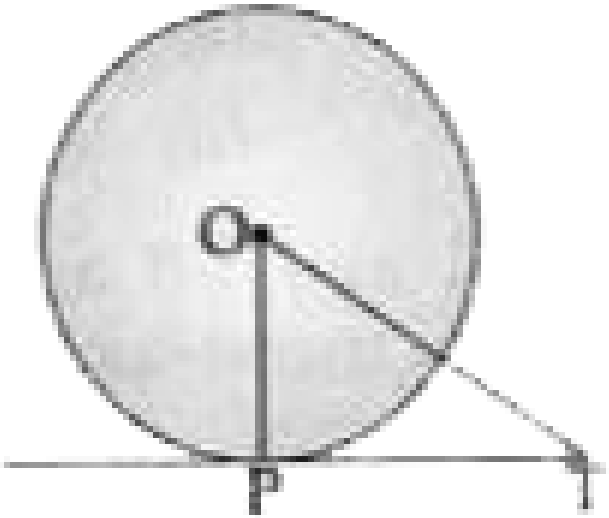
2. In the figure 'O' is the centre of the circle ,PT is a tangent and if $\angle PTO = 30^\circ$, find $\angle POT$



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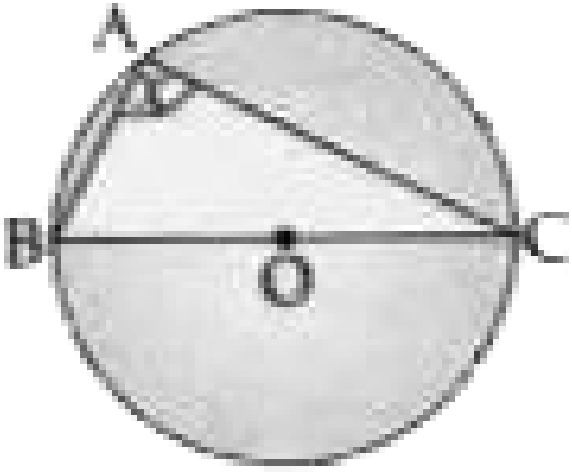
3. In the figure ,BC is the diameter.What is the measure of x?



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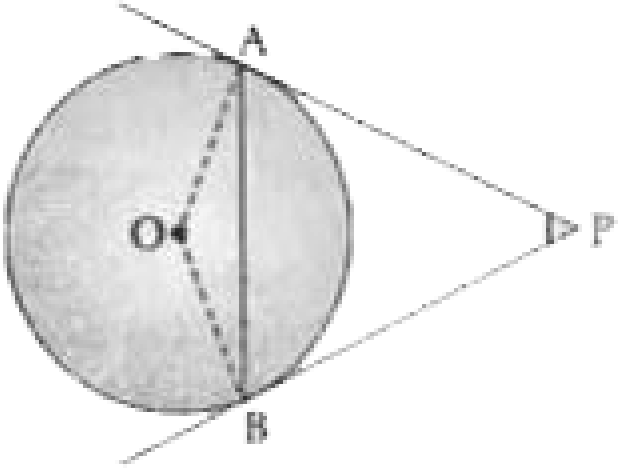
4. O is the centre of the circle.P is an external point.If AP=8cm ,Ap=BP and $\angle APB = 60^\circ$,then find the length of the chord AB.



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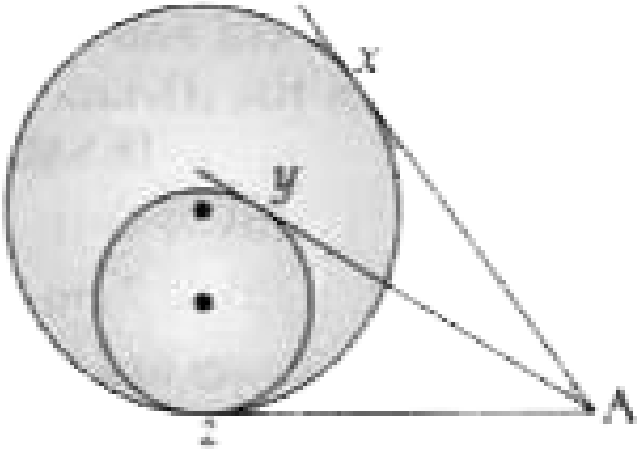
5. In the given figure ,AX,AY and AZ are the tangents to the circles.IF AX=8 cm,find AY and AZ.



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6. A chord of length 8 cm is at a distance of 3 cm from the centre.Then what is the radius of the cirecle?

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7. If the radous of a circle is 8cm and the length of one of its chords is 12cm ,then find the distacne of the chord from the centre.

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8. Find the length two radii of a circle is 130° .Find the angle between the tangents at the ends of the radii.

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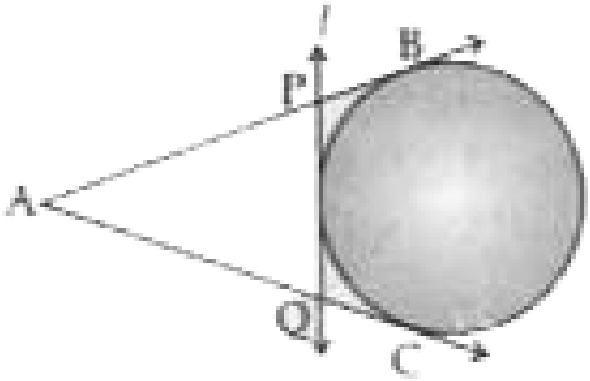
9. In figure ,if AB,AC and line l are tangents to the circle and semi-perimeter of

$\Delta APQ = 14cm$, then determine AC



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10. If TP and TQ are two tangents to a circle with centre O such that $\angle POQ = (2x + 3)^\circ$ and $\angle PTQ = (3x - 8)^\circ$,then find the value of x.

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11. If two tangents inclined at an angle of 60° are drawn to a circle of radius 3 cm,then find the length of each tangent.

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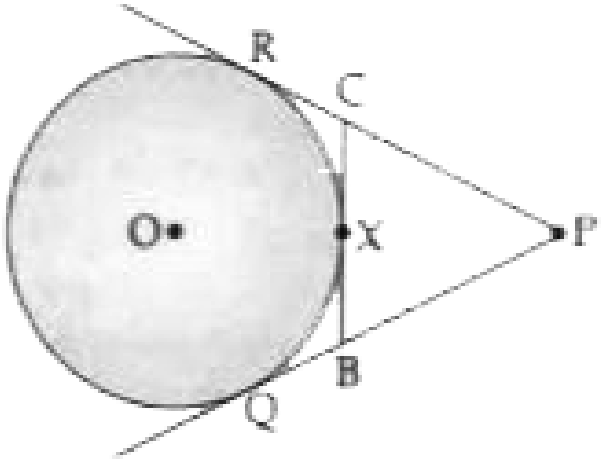
Short Answer Type Questions

1. In the given figure,PQ,PR and BC are the tangents to the circle,BC touches the circles ,at X.If PQ=7cmthen find the perimeter of ΔPBC



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2. Draw a circle of radius 3.5 cm and construct a chord of length 6cm in it.Measure the shorted distance between the centre and the chord.

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3. In a circle of radius 5 cm,construct a chord of length 8 cm .Measure the distance between the centre and the chord.

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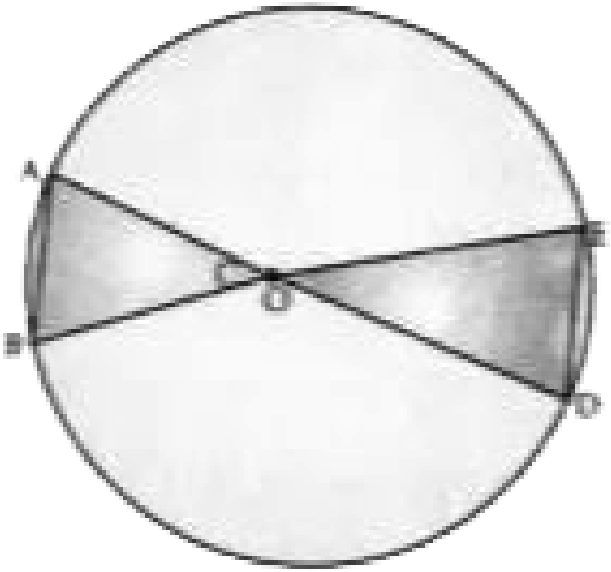
4. In the given figure ,O is the centre of the circle AB=2cm,AC=3cm,CE=6cm.Find DE.



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Long Answer Type Questions I

1. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.

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2. Three circles touch each other externally.Find the radii of the circles if the sides of the triangle formed by joining the centres are 7cm,8cm and 9cm respectively.

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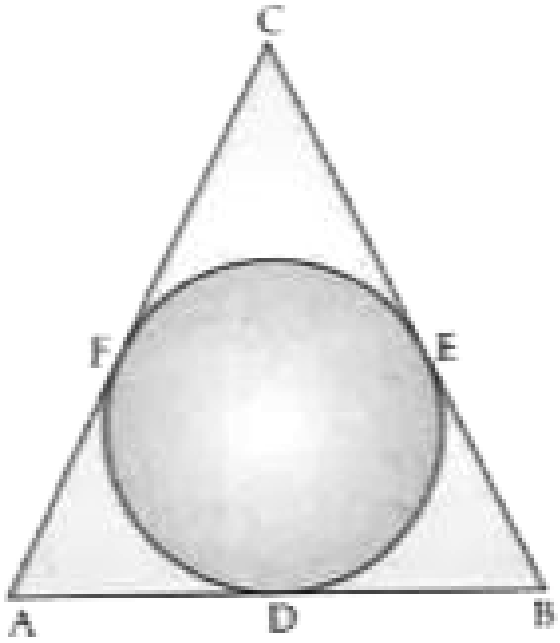
3. In the given ΔABC,AB=12cm,BC=8cm and AC=10cm.Find AF,BD and CE.



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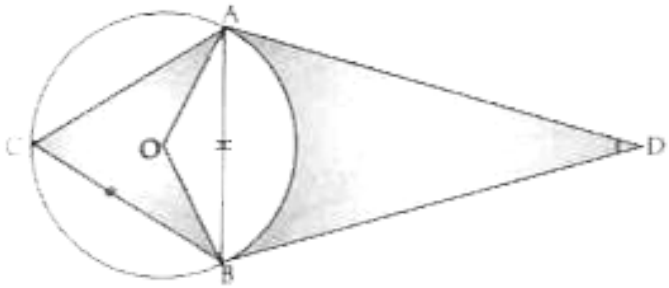
4. In the given figure AB=BC,$\angle ABC = 68^\circ$ and DB are the tangents to the circle with centre O.Calculate the measure of:

(a) $\angle ACB$ (b)$\angle AOB$ (C)$\angle ADB$



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Textbook Corner Exercise 4 1

1. How many tangents can a circle have ?

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2. A line intersecting a circle in two points is called a secant .

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3. Fill in the blanks

(iii) A circle can have .....parallel tangents at

the most.

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4. Fill in the blanks

(iv) The common point of a tangent to a circle and the circle is called .....

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5. 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 .

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

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Textbook Corner Exercise 4 2

1. From a point Q ,the length of the tangent to a circle is 24 cm and the distacne to Q from the centre is 24.5 cm.The radius of the circle is

(a) 4.92 cm

(b)12 cm

©15 cm

(d)24.5 cm

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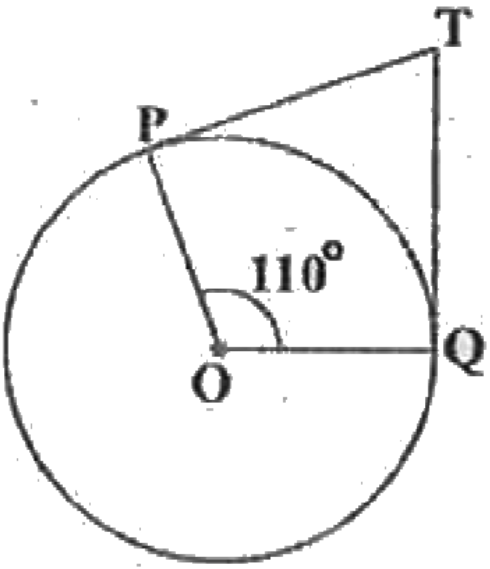
2. In the Fig, if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110^\circ$, then $\angle PTQ$ is equal to



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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° , then $\angle POA$ is equal to

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4. Prove that the tangents drawn at the ends of a diameter fo 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 circle of radii 5 cm and 3cm are drawn. Find the length of the chord of the larger circle which touches the smaller circles.

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

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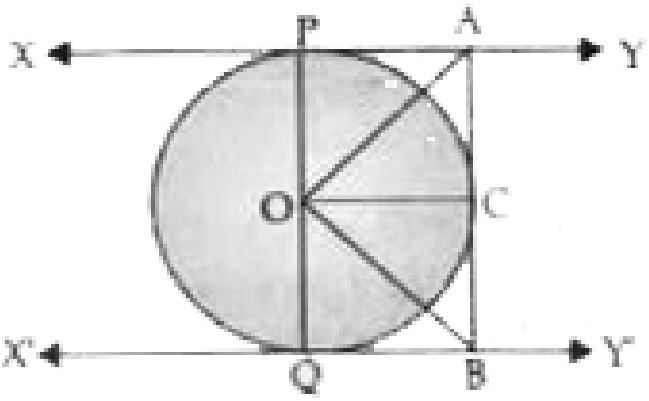
9. In the given figure ,XY and XY are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X'Y' ar B.Prove that $\angle AOB = 90^\circ$



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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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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 lengths 6 cm and 8 cm respectively. Find the sides AB and AC.

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13. Prove that opposites of a quadrilaterial circumscribing a circle subtend supplementary angles at the centre of the circle.

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