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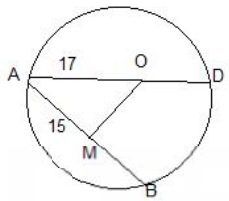
Class: 9
Subject: Math
Topic: Circle
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

1. AD is a diameter of a circle and AB is a chord. If AD =34 cm, AB = 30cm, the distance of AB from the center of the circle is :
   A. 17 cm
   B. 15 cm
   C. 4 cm
   D. 8 cm

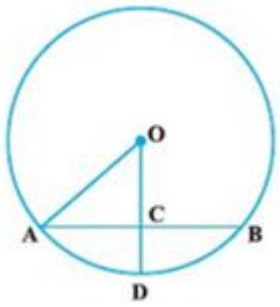
   Sol: D



$OM^2 + AM^2 = OA^2$
$OM = \sqrt{OA^2 - AM^2}$
$OM = \sqrt{32 \times 2}$
$OM = 8$

2. In Fig. 10.3, if OA = 5 cm, AB = 8 cm and OD is perpendicular to AB, then CD is equal to:
   A. 2 cm
   B. 3 cm
   C. 4 cm
   D. 5 cm

   Sol: A



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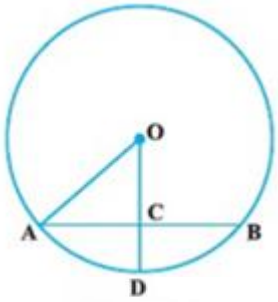
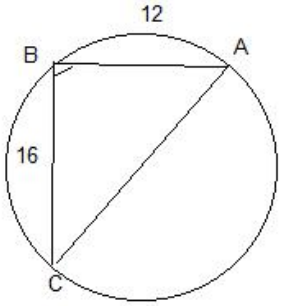


OA = OC +CA
$OC^2 = OA^2 - AC^2$
OC^2= 25-16
OC = 3

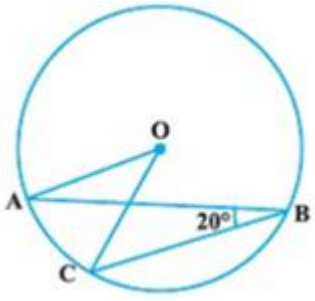
3. If AB = 12 cm, BC = 16 cm and AB is perpendicular to BC, then the radius of the circle passing through the point A, B and C is:
   A. 6 cm
   B. 8 cm
   C. 10 cm
   D. 12 cm



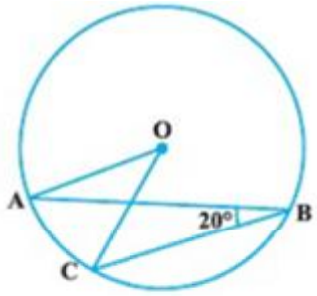
Sol: C

Ac is diameter
$AC = \sqrt{AB^2 + BC^2}$
$= \sqrt{144 + 256}$
$= \sqrt{400}$
$= 20 \qquad \therefore radius = 10$

4. In Fig. 10.4, if <ABC = 20°, then < AOC is equal to:
   A. 20°
   B. 40°
   C. 60°
   D. 10°



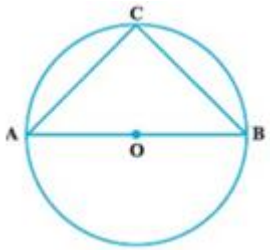
Sol: B



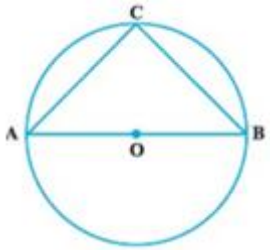
$\angle AOC = 2\angle ABC$

$\angle AOC = 2 \times 20 = 40°$

5. In Fig. 10.5, if AOB is a diameter of the circle and AC and BC, then <CAB is equal to:



A. 30°
B. 60°
C. 90°
D. 45°



Sol: D

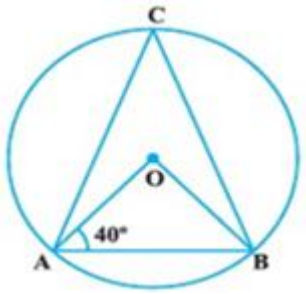
As $\angle ACB = 90°$

$\therefore \angle CAB + \angle CBA + 90° = 180°$

As, AC = CB

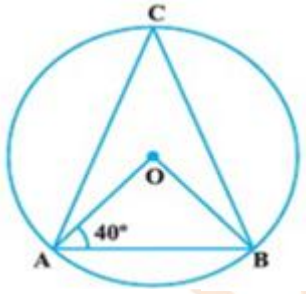
$\therefore \angle CAB = \frac{90}{2} = 45°$

6. In Fig. 10.6, if <OAB = 40°, then <ACB is equal to:



A. 50°
B. 40°
C. 60°
D. 70°

Sol: A



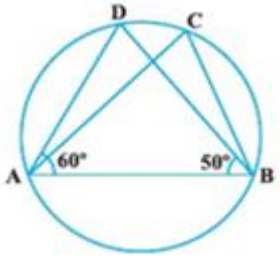
$\therefore OBA = 40°$

$\therefore \angle AOB = 180° - [40° + 40°]$

$\angle AOB = 100°$

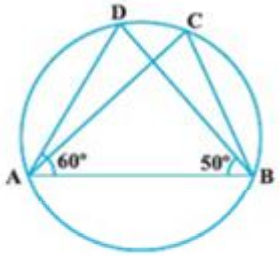
$\angle ACB = \frac{AOB}{2} = \frac{100}{2} = 50°$

7. In Fig. 10.7, if <DAB = 60°, <ABD = 50°, then < ACB is equal to:



A. 60°
B. 50°
C. 70°
D. 80°

Sol: C



In ΔADB

$\angle A + \angle D + \angle B = 180°$

$60° + \angle D + 50° = 180°$

$\angle D = 180° - 110°$

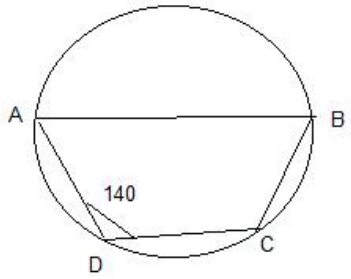
$\angle D = 70°$

$\therefore \angle D = \angle C$ (*Angle in same segment*)

$\therefore \angle C = 70°$

8. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and <ADC = 140°, then < BAC is equal to:
A. 80°
B. 50°
C. 40°
D. 30°

Sol: B



Opposite angles are supplementary

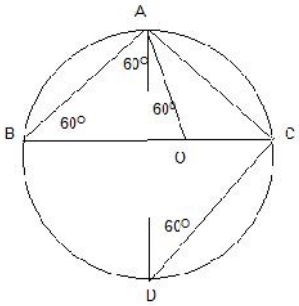
$\angle D + \angle B = 180°$

$\angle B = 180° - 140°$

$\angle B = 40°$

9. In Fig. 10.8, BC is a diameter of the circle and <BAO =60°, Then <ADC is equal to:

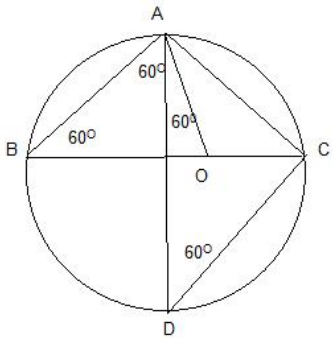
A. 30°
B. 45°
C. 60°
D. 120°



Sol: C

Angle in same dement

∠ABO = ∠ADC = 60^o



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10. In Fig. 10.9, <AOB = 90° and <ABC = 30°, then <CAO is equal to:

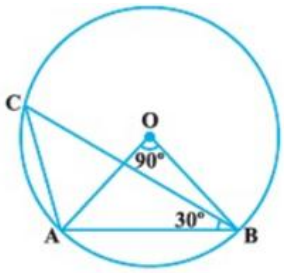


Fig. 10.9

A. 30°
B. 45°
C. 90°
D. 60°

Sol: D

OB = OB

$\therefore \angle OAB = \angle OBA = 45^0$

$\angle CAB = 180-46-30$

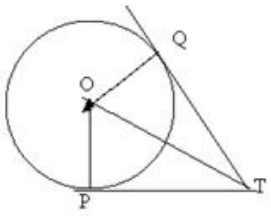
$=105^0$

$\angle CAB = \angle CAO + \angle OAB$

$105^0 = \angle CAO + 45^0$

$\angle CAO = 60$

11. In the following figure, if TP and TQ are the two tangents to a circle with center o so that angle POQ =110°, then angle PTQ is equal to



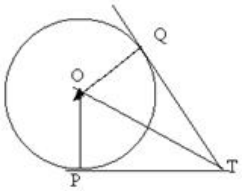
A. 60°

B. 70°
C. 80°
D. 90°

Sol: B

OT = OT
OP = OQ (radius)
$\angle OQT = \angle OPT$ (right angle)
So, $\Delta OQT \cong \Delta OPT$
So, $\angle POT = \angle QOT = \frac{110}{2} = 55°$
So, $\angle PTO = \angle QTO = 180° - (90° + 55°) = 35°$
So, $\angle PTQ = 2 \times 35° = 70°$

12. If tangents TQ and TP from a point T to a circle with center O are inclined to each other at angle of 80°, then angle TOP is equal to
A. 50°
B. 60°
C. 70°
D. 80 °

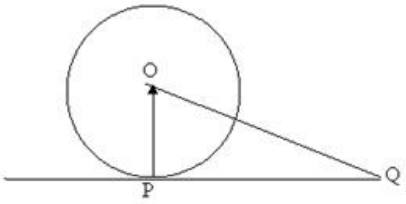


Sol: A

Using same method as in the previous question. <TOP =180° - (90°+40°) = 50°

13. From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the center is 25 cm. The radius of the circle is

A. 7 cm
B. 12 cm
C. 15cm
D. 24.5 cm



Sol: A

Solution: In Δ OPQ

$OP^2 = OQ^2 - PQ^2$

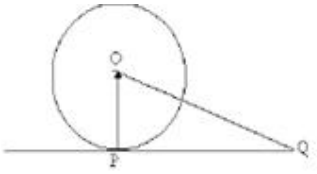
Or, $OP^2 = 25^2 - 24^2$

Or, $OP^2 = 625 - 576$

Or, $OP^2 = 49$

Or, $OP = 7$

14. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the center O at a point Q so that OQ = 12 cm. Length PQ is:



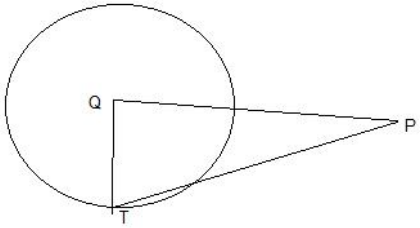
A. 12 cm
B. 13 cm
C. 8.5 cm
D. √49cm

Sol: D

√49 available till

15. Find the length of tangent drawn to a circle with radius 7 cm from a point 25 cm away from the centre.
A. 24 CM
B. 27 CM
C. 26 CM
D. 25 CM

Sol: A



$PT^2 + OT2 = OP^2$

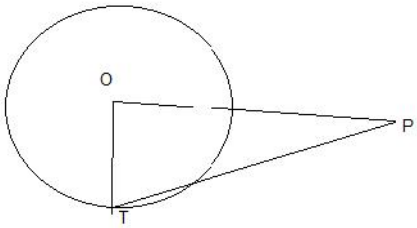
$PT^2 = 625-49$

PT2 = 576

PT = 24

16. A Point P is 26 cm away from the centre of a circle and the length of the tangent drawn from P to the circle is 24 cm find the radius of the circle.
    A. 11 CM
    B. 10 CM
    C. 16CM
    D. 15 CM

    Sol: B

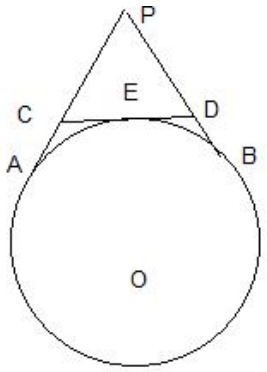


$PT^2 + OT^2 = OP^2$

$OT^2 = (26)^2-(24)^2$

OT = 10

17. From an external point P, tangents PA and PB are drawn to a circle with centre O if CD is the tangent to the circle at a point E and Pa = 14 cm, find the perimeter of the ΔPCD.
    A. 28 CM
    B. 27 CM
    C. 26 CM
    D. 25 CM



Sol: A

PA = PB = 14

Perimeter of ΔPCD

= PC+CE+ED+DB

& (CE=AC) & (ED+DB)

=2(PA)

=2×14 = 28 cm

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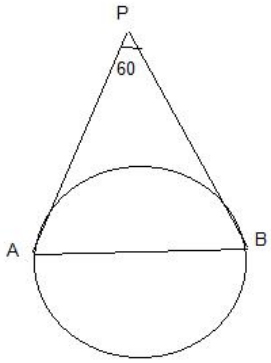
18. In the above sided figure, PA and PB are tangents such that PA = 9 cm and ∠APB = 60^0. Find the length of the chord AB.
    A. 4 cm
    B. 7 cm
    C. 6 cm
    D. 9 cm

    Sol: D



    PA = PB

    ∴∠PAB = ∠PBA =60°

    Equiletnal Δ.

    PA = AB = 9

19. In the below figure the circle touches all the sides of a quadrilateral ABCD whose three sides are AB = 6 cm, BC = 7 cm, CD = 4 cm, Find AD.
    A. 4 cm
    B. 3 cm
    C. 6 cm
    D. 9 cm

    Sol: B

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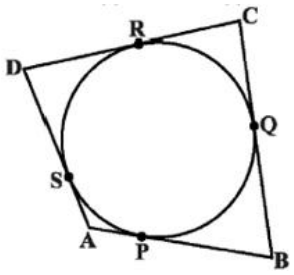


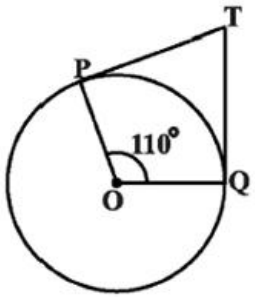
From figure

AB+CD = BC+AD

6 + 4 = 7 + AD

AD = 3

20. In the above sided fig., if TP and TQ are the two tangents to a circle with centre O so that ∠POQ = 110^0, then ∠PTQ is equal to
    A. 60^0
    B. 70^0
    C. 80^0
    D. 90^0



Sol: B

In quadrilateral

PTQO

∠P+∠Q+∠T+∠O =360°

90°+90°+110°+∠T = 360°

∠T = 70°