MATHS

BOOKS - S CHAND IIT JEE FOUNDATION

CIRCLES

Question Bank 24

1. O is the centre of a circle with radius 5 cm. LM is the diameter of the circle. P is a point on the

plane of the circle such that LP = 6 cm and MP = 8 cm. Then P lies.

A. on LM

B. outside the circle

C. inside the circle

D. on the circle

Answer: D

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Question Bank 25

1. The chord of a circle is equal to its radius, find the angle subtended by this chord at the centre.

    A. $60°$

    B. $75°$

    C. $120°$

    D. $150°$

Answer: D

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1. Given a circle with centre O. The smallest chord PQ is of length 4 cm largest chord AB is of length 10 cm and chord EF is of length 7 cm. Then, the radius of the circle is

    A. 3 cm

    B. 2 cm

    C. 5 cm

    D. 3.5 cm

Answer: C

Question Bank 27

1. The radius of a circle is 6 cm. The perpendicular distance from the centre of the circle to the chord which is 8 cm in length is

    A. $\sqrt{5}$ cm

    B. $2\sqrt{5}$ cm

    C. $2\sqrt{7}$ cm

    D. $\sqrt{7}$ cm

Answer: B

Question Bank 28

1. PQ and RS are two parallel chords of a circle with centre C such that PQ = 8 cm and RS = 16 cm. If the chords are on the same side of the centre and the distance between them is 4 cm, then the radius of the circle is :

A. $3\sqrt{2}$ cm

B. $3\sqrt{5}$ cm

C. $4\sqrt{5}$ cm
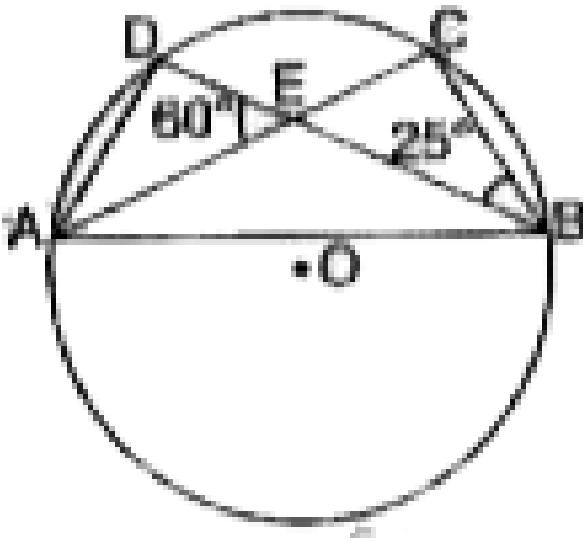
D. $5\sqrt{5}$ cm

Answer: C

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Question Bank 29

1. In the given figure, O is the centre of the circle.

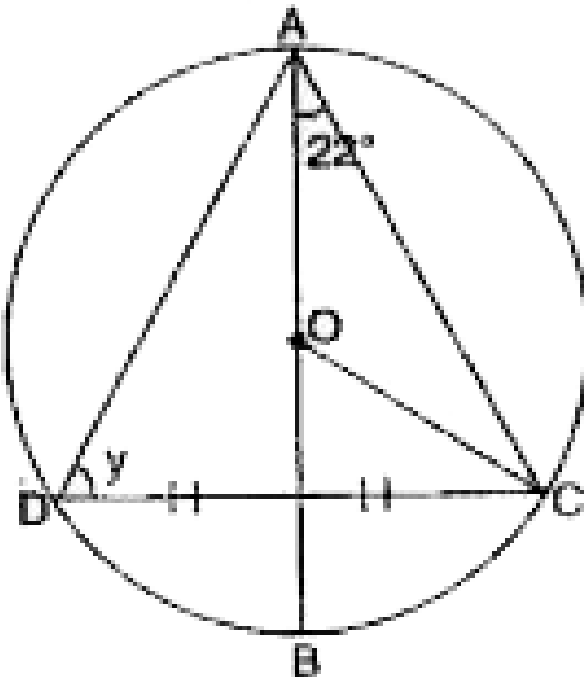The measure of $\angle$ ADB is

A. $90°$

B. $85°$

C. $95°$

D. $120°$

Answer: C

Question Bank 30

1. Given that AOB is a straight line and O is the centre of the circle. Find the value of y.
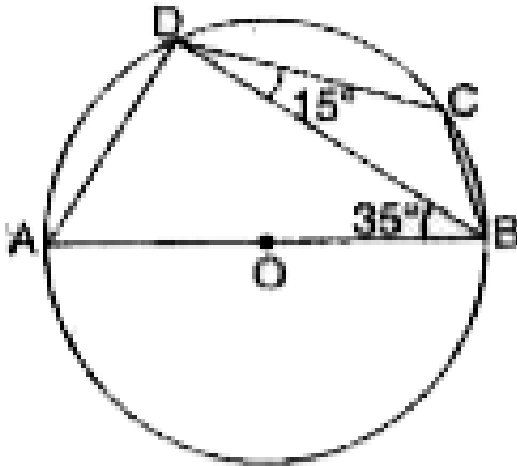
A. 44°

B. 11°

C. 68°

D. 36°

Answer: C

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Question Bank 31

1. In the given diagram, AB is the diameter of the given circle with centre O. C and D are points on the circumference of the circle. If $\angle ABD = 35°$ and $\angle CDB = 15°$, then $\angle$ CBD equals.

A. $55°$

B. $75°$

C. 40°
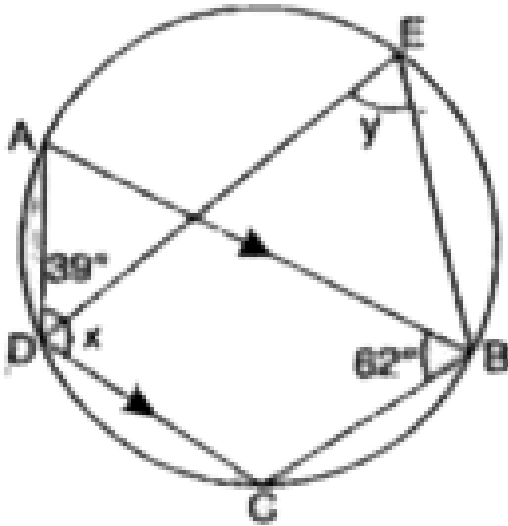
D. 25°

Answer: C

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Question Bank 32

1. In the diagram, A, B, C, D, E are points on the circle. AB||DC, $\angle ADE = 39^\circ$ and $\angle ABC = 62^\circ$. Then the

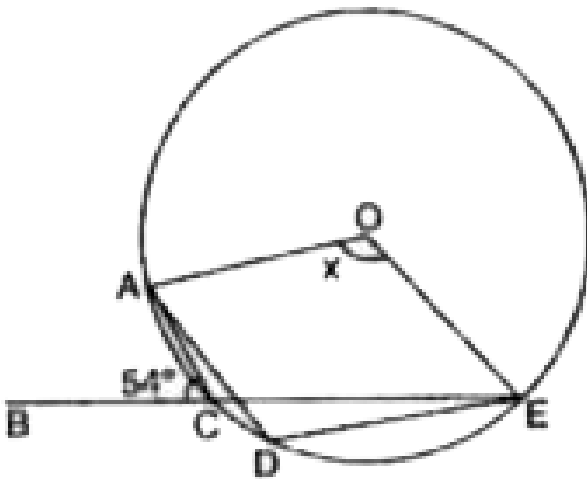values of x and y respectively are :

A. $23°$, $51°$

B. $79°$, $62°$

C. $62°$, $79°$

D. $51°$, $23°$

Answer: B

Question Bank 33

1. In the given figure, O is the centre of the circle, $\angle ACB = 54°$ and BCF is a straight line. Find x.

A. $126°$

B. 54°

C. 108°
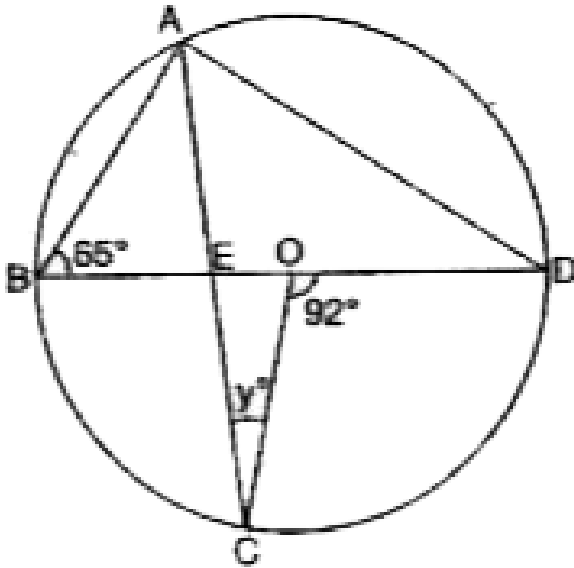
D. 90°

Answer: C

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Question Bank 34

1. In the given figure, BOD is the diameter of the circle with centre O.

$\angle COD = 92°$ and $\angle ABD = 65°$.   Then   y
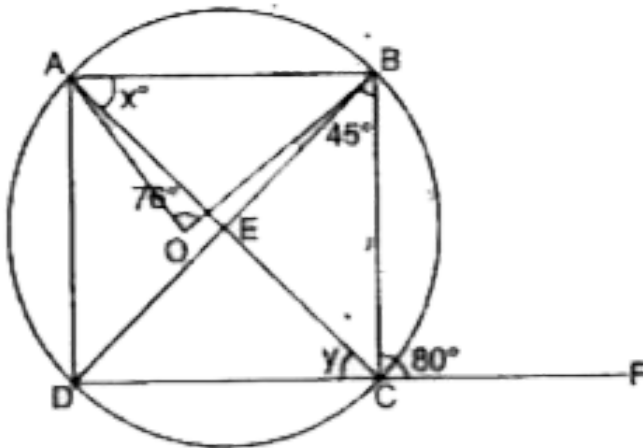
equals

A. $65°$

B. $46°$

C. $44°$

D. $21°$

Answer: D

Question Bank 35

1. O is the centre of the circle x and y respectively equal.

A. 38° , 45°

B. 35° , 62°
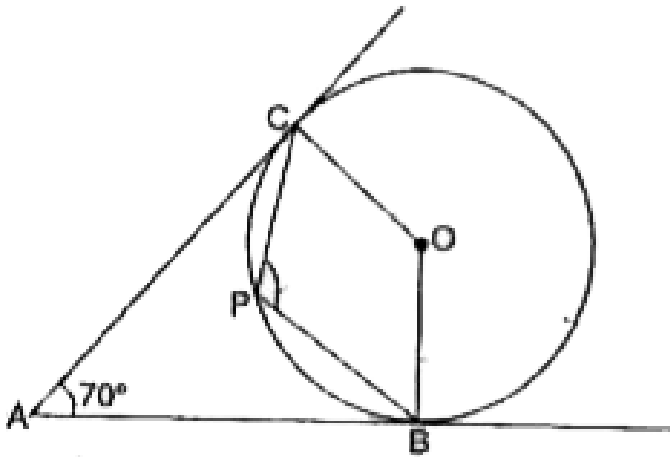
C. 62° , 35°

D. 46° , 38°

Answer: B

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Question Bank 36

1. In the given figure, AB and AC are tangents to the circle with centre O. Given that $\angle BAC = 70°$ and P is a point on the minor are BC, find $\angle$ BPC.

A. $110°$

B. $140°$

C. $125°$

D. $136°$

Answer: C

Question Bank 37

1. The length of a tangent drawn from a point 10 cm away from the centre of the circle of radius 5 cm is

A. 5 cm

B. $5\sqrt{3}$ cm

C. $2\sqrt{3}$ cm
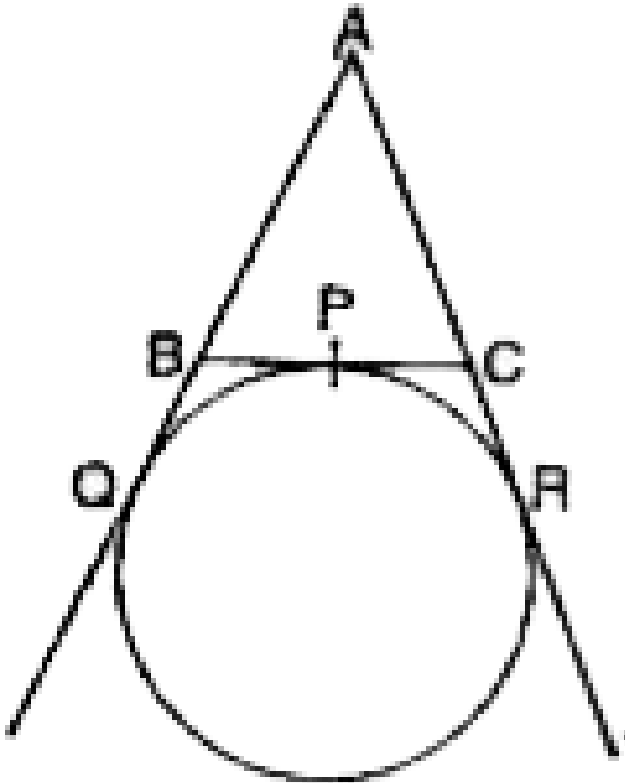
D. $\sqrt{15}$ cm

Answer: B

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Question Bank 38

1. In the figure shown here, a circle touches the side BC of a triangle ABC at P and AB and AC

produced at Q and R respectively. What is AQ

equal to ?

A. One-third of the perimeter of △ ABC.

B. Half of the perimeter of △ ABC.

C. Two-third of the perimeter of △ ABC

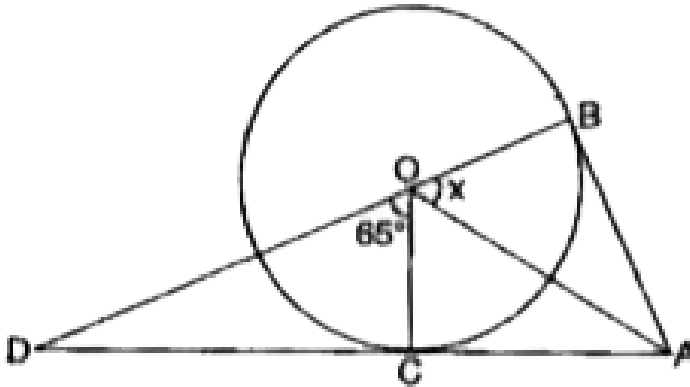D. Three-fourth of the perimeter of △ ABC

Answer: B

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Question Bank 39

1. In the given figure, AB and AC are tangents to the circle at B and C respectively and O is the

centre of the circle, then x equals

A. $65°$

B. $32.5°$

C. $57.5°$

D. $45°$

Answer: C

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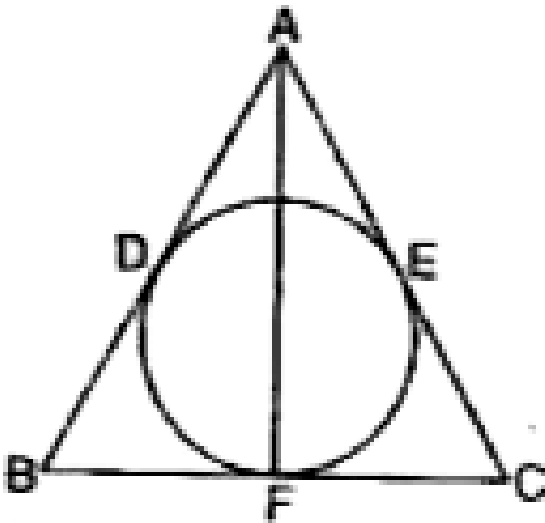
1. ABC is an isosceles triangle (AB = AC) circumscribed about a circle. Then, which of the following statements is correct ?

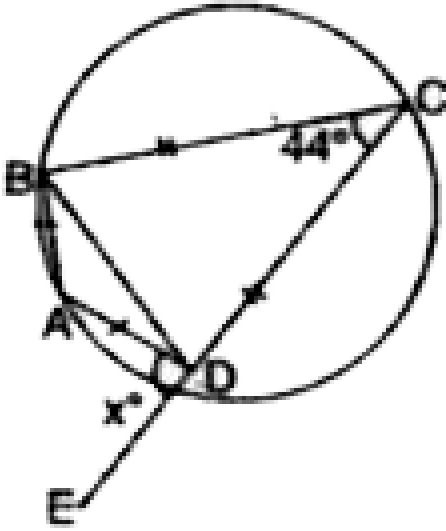A. BD = AD

B. AD = CF

C. BF = CF

D. AE = BF

Answer: C

Question Bank 41

1. In the figure, CDE is a straight line and A, B, C and D are points on the circle. $\angle BCD = 44°$,

find the value of x.

A. $44°$

B. $68°$

C. $90°$

D. $56°$

Answer: C

Question Bank 42

1. From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle are drawn. Then the area of the quadrilateral PQOR is :

A. $60 \ cm^2$

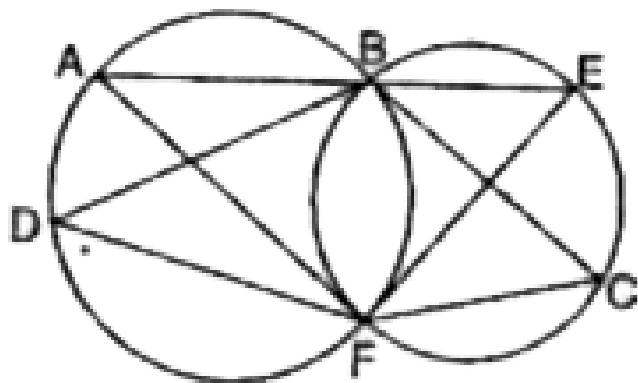B. $65 \ cm^2$

C. $30 \ cm^2$

D. $32.5 \ cm^2$

Answer: A

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Question Bank 43

1. In the given figure, $\angle AFD = 25°$. $\therefore \angle EFC$

equals

A. 65°

B. 155°

C. 90°

D. 25°

Answer: D

1. O is the centre of a circle. There is a point P in the region of the circle. If PA = PB = PC where A, B and C are points on the circumference of the circle, then OP must be equal to :

A. $\dfrac{PA + PB + PC}{3}$

B. $\dfrac{PA + PB + PC}{2}$

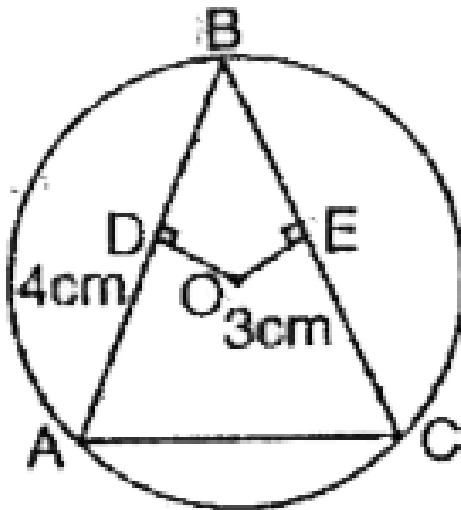C. $\dfrac{AB + BC}{2}$

D. zero

Answer: D

2. In the given figure, O is the centre of the circle. Given that OD = OE = 3 cm and AD = 4 cm. Find the length of the longest chord.

A. 6 cm

B. 8 cm

C. 10 cm

D. 9 cm

Answer: C
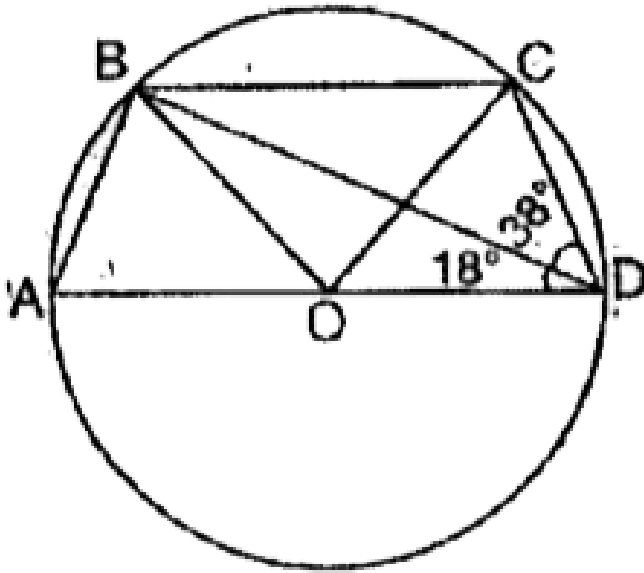
3. AOD is a diameter of the circle with centre O.

Given that

$\angle BDA = 18°$ and $\angle BDC = 38°. \angle BCD$

equals

A. $90°$

B. $108°$

C. $76°$

D. $52°$

Answer: B

4. Tangents drawn at the end points of a diameter are

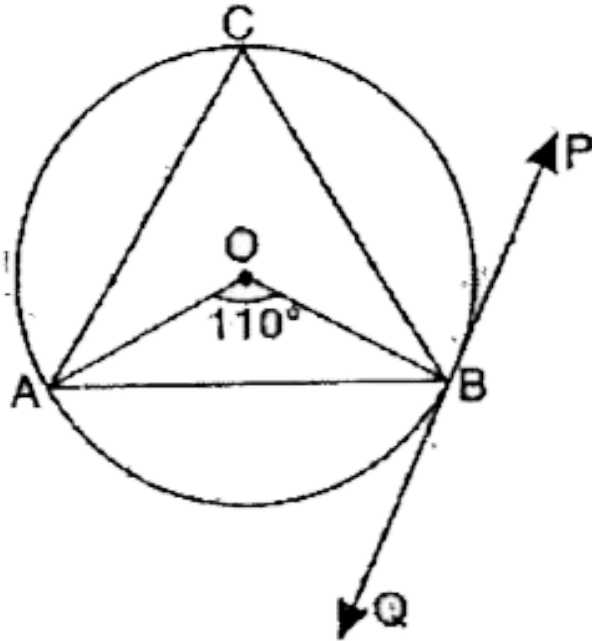A. Perpendicular

B. Parallel

C. Intersecting

D. None of these

Answer: B

5. In the given figure, AB is a chord of the circle

with centre O and PQ is a tangent at point B of

the circle. If $\angle AOB = 110°$, then $\angle$ ABQ is

A. $45°$

B. $70°$

C. $55°$

D. $35°$

Answer: C

6. In the given figure, if PA and PB are tangents to the circle with centre O such that $\angle APB = 54°$, then $\angle$ OAB equals

A. $36°$

B. $18°$

C. $27°$

D. $36°$

Answer: C

7. If two tangents inclined at an angle of $60°$ are drawn to a circle of radius 4 cm, then the length of each tangent is equal to :
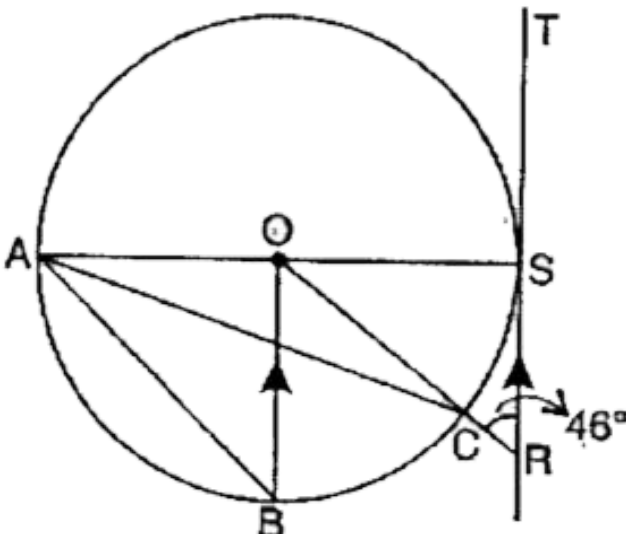
   A. $2\sqrt{3}$ cm

   B. 8 cm

   C. 4 cm

   D. $4\sqrt{3}$ cm

Answer: D

8. In the given figure, RST is the tangent to the circle with centre O, at S. AOS is a straight line BO||RT and $\angle ORS = 46°$. Then $\angle$ BAC equals
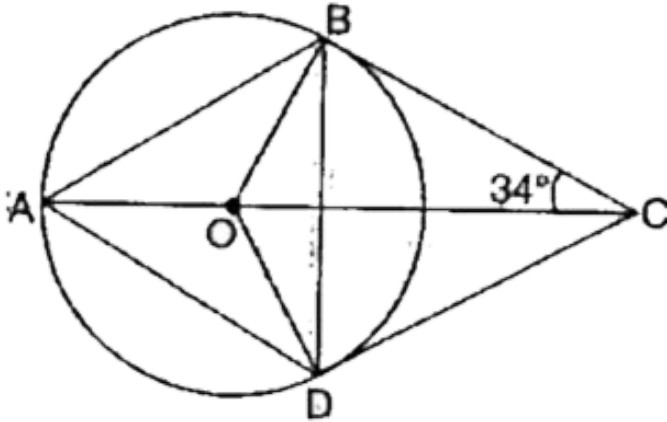
A. $22°$

B. $46°$

C. $23°$

D. $32°$

Answer: C

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9. In the diagram, CB and CD are tangents to the

circle with centre O. AOC is a straight line and

$\angle OCB = 34°$. $\angle ABO$ equals.

A. $56°$

B. $28°$

C. $34°$

D. $32°$

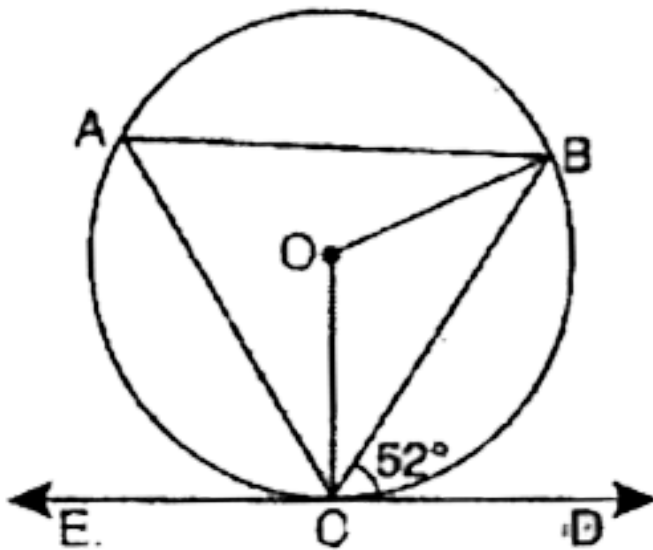Answer: B

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10. ED is the tangent to the circle with centre O.

$\angle BCD = 52°$. Then, $\angle$ CAB equals

A. $38°$

B. $76°$

C. 52°

D. 46°

Answer: C

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Unit Test 4

1. ABC is an isosceles triangle in which altitudes

BE and CF are drawn to equal sides AC and AB

respectively (see Fig. 7.31). Show that these altitudes are equal.

A. $\angle B = \angle C$

B. $\angle BAE = \angle FAC$

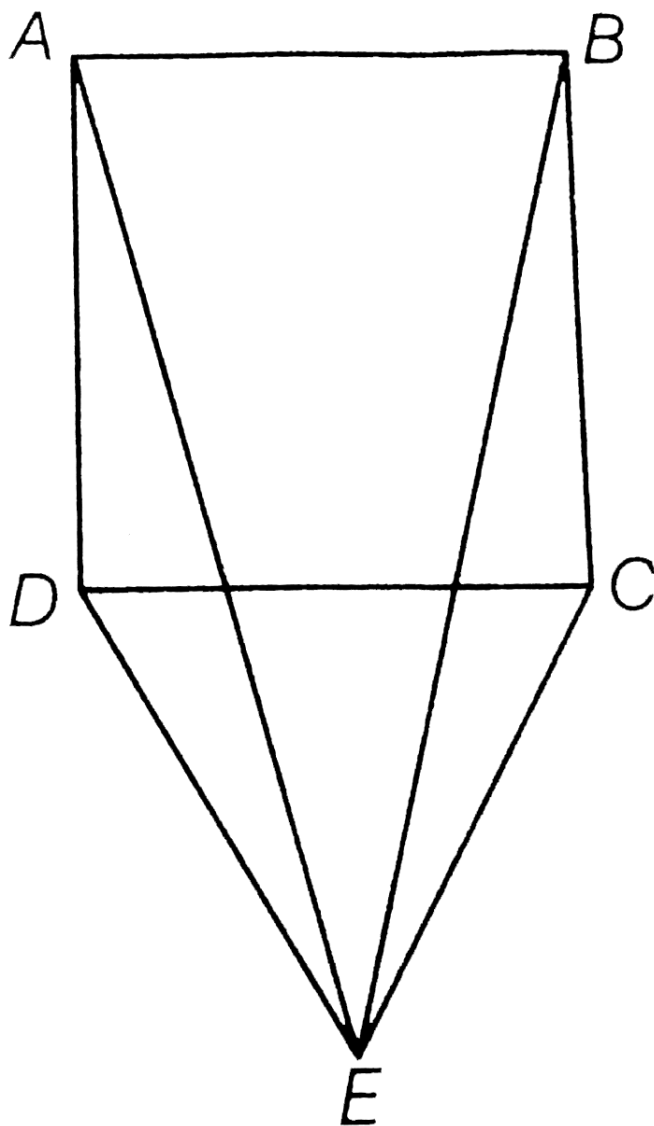C. $\angle AFC = \angle AEB$

D. BE = CF

Answer: A

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2. In the given figure, ΔCDE is an equlatel triangle triangle formed on a side CD of a square

ABCD.Show that $\triangle ADE \cong \triangle BCE$.

A. RHS

B. SSS

C. AAS

D. SAS

Answer: D

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3. The centroid and the orthocentre are coincident for which one of the following triangles ?

A. Scalene triangle

B. Isosceles triangle

C. Equilateral triangle

D. Right angled triangle

Answer: C

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4. ABC is an isosceles triangle right angled at B. Similar triangles ACD and ABE are constructed on sides AC and AB. The ratio between the areas of ΔABE and ΔACD is

A. $\sqrt{2}:1$

B. $1:2$

C. $2:1$

D. $\sqrt{2}:1$

Answer: B

5. In $\triangle ABC$ and $\triangle DEF$, it is given that AB = 5 cm, BC = 4 cm, CA = 4.2 cm, DE = 10 cm, EF = 8 cm and FD = 8.4 cm. If AL is perpendicular to BC and

DM is perpendicular to EF, then what is the ratio of AL to DM.

A. $\dfrac{1}{2}$

B. $\dfrac{1}{3}$

C. $\dfrac{1}{4}$

D. 1

Answer: A

6. In $\triangle$ PQR, PQ = 4 cm, QR = 3 cm, and RP = 3.5 cm. $\triangle$ DEF is similar to $\triangle$ PQR. If EF = 9 cm, then what is the perimeter of $\triangle$ DEF ?

A. 10.5 cm

B. 21 cm

C. 31.5 cm

D. Cannot be determined as data is insufficient

Answer: C

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7. In a △ PQR, perpendicular Ps from P to QR meets QR at S. If PS : QS : RS = 2 : 4 : 1, then which of the following is correct ?

    A. PQR is an equilateral triangle

    B. PQR is right angled at P

    C. PQR is an isosceles triangle

    D. PQ = 3 PR

Answer: B

8. s at t are transversals cutting a set of parallel lines such that a segment of length 3 in s corresponds to a segment of length 5 in t. What is the length of segment in t corresponding to a segment of length 12 in s ?

A. 20

B. $\dfrac{36}{5}$

C. 14

D. $\dfrac{5}{4}$

Answer: A

9. A point within an equilateral triangle, where perimeter is 18 m is 1 m from one side and 2 m from another side. Its distance from the third side is :

A. $3\sqrt{3} + 3$

B. $3\sqrt{3} - 3$

C. $3 - \sqrt{3}$

D. $3 + \sqrt{3}$

Answer: B

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10. The perimeter of two similar triangles are 24 cm and 1 cm respectively. If one side of the first triangle is 10 cm, then the corresponding side of the second triangle is

A. 9 cm

B. 20/3 cm

C. 16/3 cm

D. 5 cm

Answer: B

11. In a circle of radius 10 cm, a chord is drawn 6 cm from the centre. If a chord half the length of the original chord were drawn, its distance in centimeters from the centre would be

A. $\sqrt{84}$

B. 9

C. 8

D. 3π

Answer: A

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12. The number of tangents that can be drawn to two non-intersecting circles is
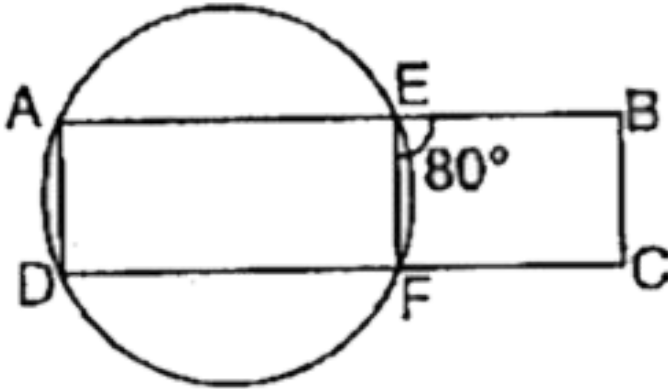
A. 4

B. 3

C. 2

D. 1

Answer: A

13. ABCD is a parallelogram. A circle passes through A and D and cuts AB at E and DC at F.

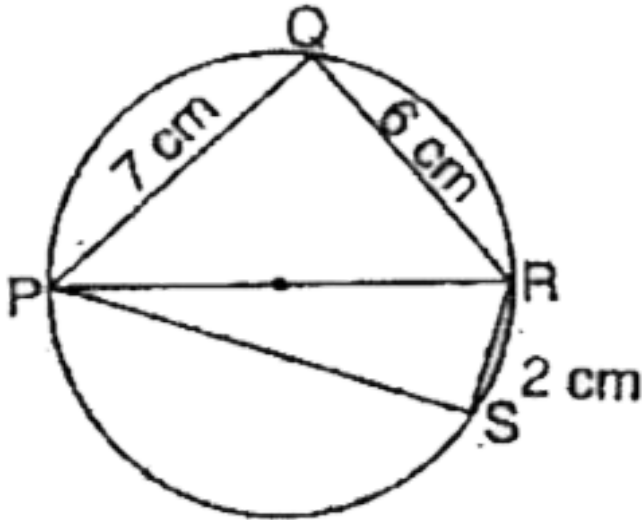Given $\angle BEF = 80°$, find $\angle ABC$.

A. $100°$

B. $40°$

C. $80°$

D. $104°$

Answer: C

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14. In the given figure, PR is the diameter of the circle. PQ = 7 cm, QR = 6 cm and RS = 2 cm. The perimeter of the cyclc quadrilateral PQRS is

A. 18 cm

B. $20\sqrt{2}$ cm

C. 24 cm

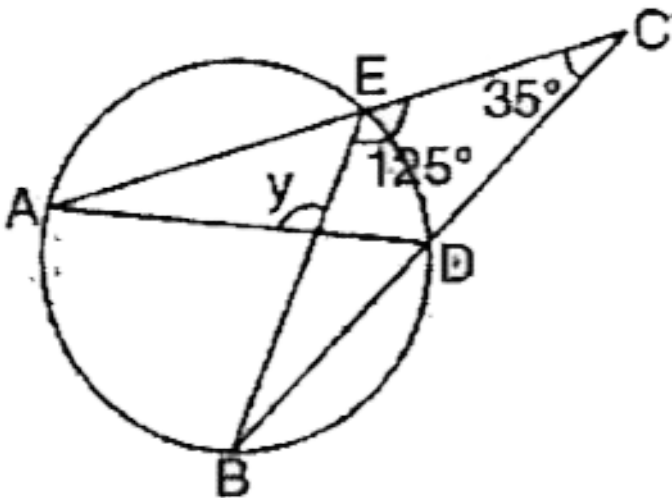D. $22\sqrt{3}$ cm

Answer: C

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15. In the given figure, $\angle$ y equals

A. 75°

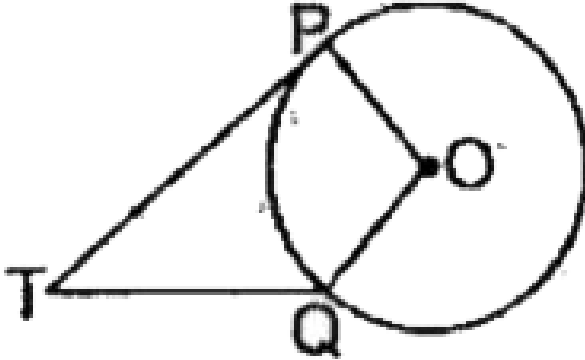B. 145°

C. 90°

D. 105°

Answer: D

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16. TP and TQ are tangents from T to the circle

with centre O. Then is it possible to draw a circle

through the points P, O, Q and T ?

A. No

B. Yes
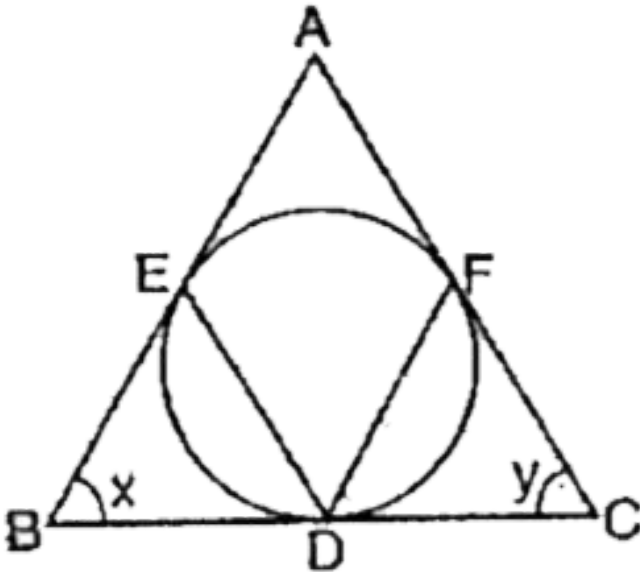
C. Cannot say

D. Data insufficient

Answer: B

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17. BC, AB and AC are tangents to the circle at D,

E   and   F   respectively.

$\angle EBD = x°$, $\angle FCD = y°$. Then $\angle$ EDF equals
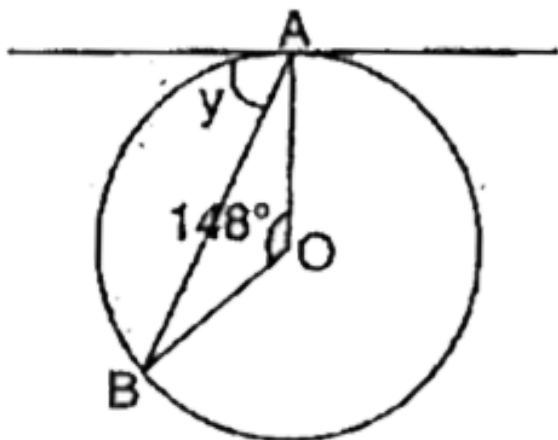

A. x + y

B. $\dfrac{x}{2} - y$

C. $90° - (x + y)$

D. $\dfrac{x + y}{2}$

Answer: D

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18. Find $\angle$ y.

A. $32°$

B. $72°$

C. $64°$
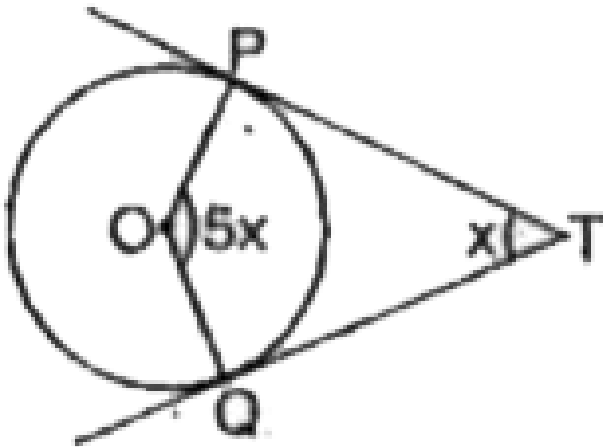
D. $44°$

Answer: C

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19. TP and TQ are the tangents to a circle, with centre O. Find x.
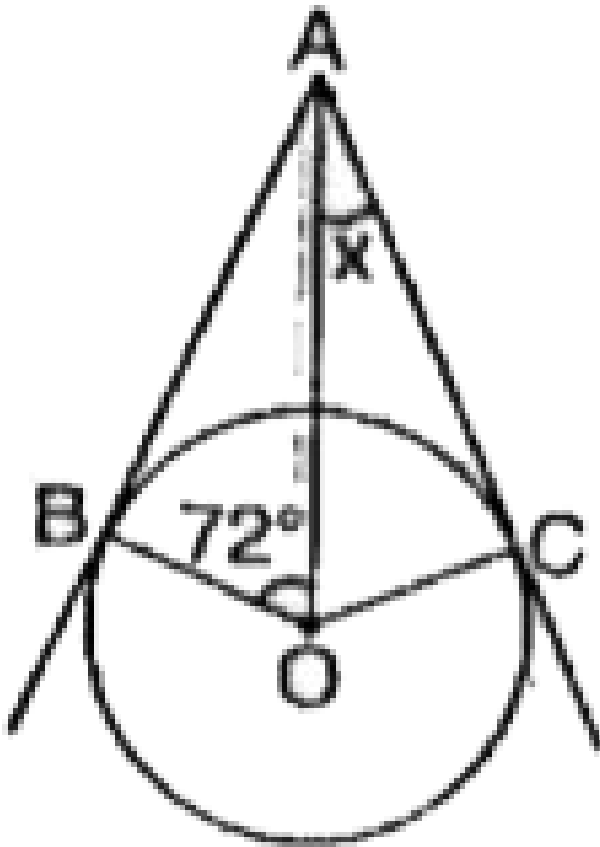
A. $15°$

B. $60°$

C. $30°$

D. $45°$

Answer: C

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20. AB and AC are tangents to the circle with

centre O. Then x equals.

A. $22°$

B. 18°

C. 20°

D. 36°

Answer: B

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21. Diagonals of a quadrilateral bisect each other.

If $\angle A = 45^\circ$, then $\angle$ B equals

A. 45°

B. $55°$

C. $135°$

D. $115°$

Answer: C

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22. If APB and CQD are two parallel lines, then the bisectors of the angles APQ, BPQ, CQP and PQD form

A. square

B. a rhombus

C. a rectangle

D. kite

Answer: C

23. The interior angle of a regular polygon with n sides is 6 times that of an exterior angle of a regular polygon with $\dfrac{3}{2}$ n sides. Then n equals
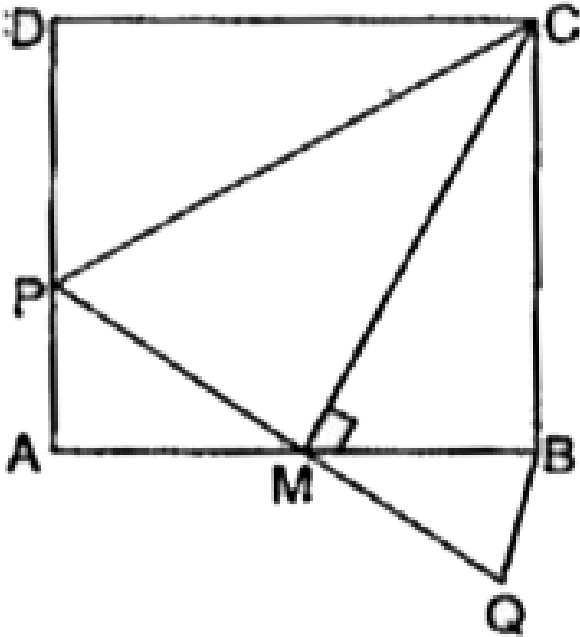
A. 12

B. 20

C. 10

D. 18

Answer: C

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24. In the given figure, ABCD is a square. M is the midpoint of AB and $PQ \perp CM$. Which of the

following statements is not true ?

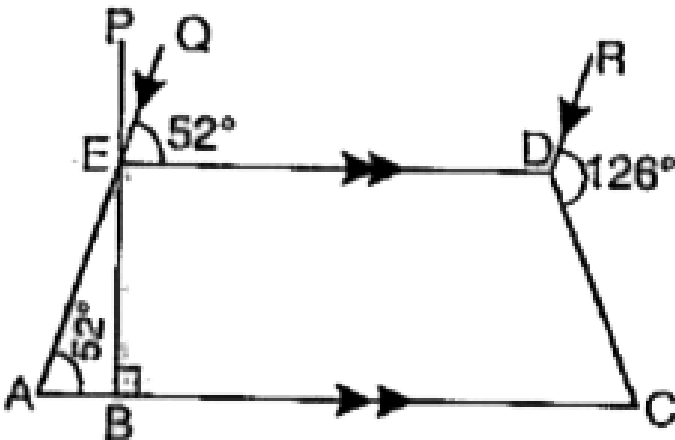A. AM = MB

B. CP = CQ

C. CP = CB

D. PM = MQ

Answer: C

25. In the diagram, ACDE is a trapezium with

AC||ED. Given that

$\angle EAB = 52°$, $\angle CDR = 126°$ and $\angle PBC = 90°$

and EQ||DR. Then $\angle$ BCD equals

A. 36°

B. 74°

C. 54°

D. 38°

Answer: B

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