



MATHS

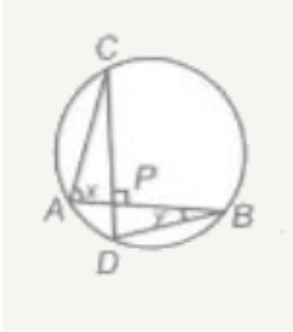
BOOKS - HT Olympiad Previous Year Paper

CIRCLES

Mathematical Reasoning

1. In the given figure, if chords AB and CD of the circle intersect each other at right angles,

then $x + y =$



A. 45°

B. 60°

C. 75°

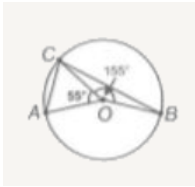
D. 90°

Answer: D



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2. In the given figure, angles subtended by chords AC and BC at the centre of the circle are 55° and 155° respectively. Find $\angle ACB$.



A. 150°

B. 75°

C. 62°

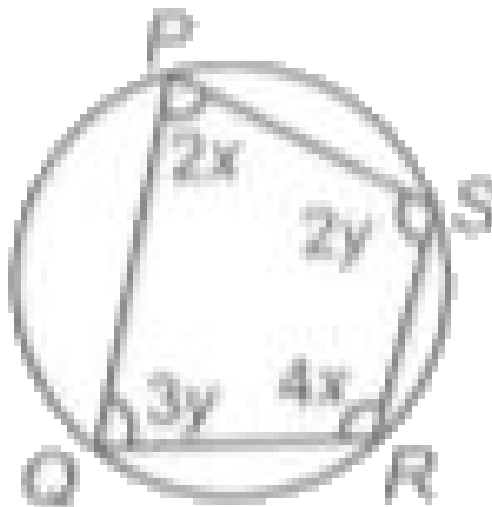
D. 60°

Answer: B



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3. In the given figure, if PQRS is a cyclic quadrilateral with respective angles. Then, the ratio of x and y is _____



A. 1 : 3

B. 5 : 6

C. 2 : 3

D. None of these

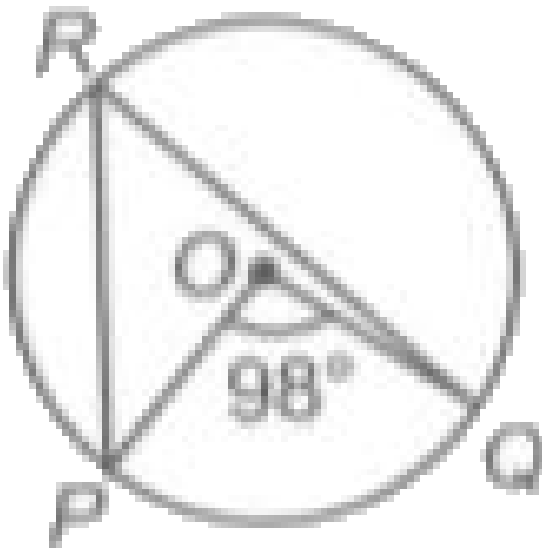
Answer: B



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4. O is the centre of the circle. If

$\angle POQ = 98^\circ$ then $\angle PRQ$ is _____.



A. 196°

B. 49°

C. 98°

D. 80°

Answer: B



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5. In the given figure, $AB = 8$ cm, $OM = ON = 4$ cm. Then CD is _____



A. 3.5 cm

B. 4.5 cm

C. 3 cm

D. 8 cm

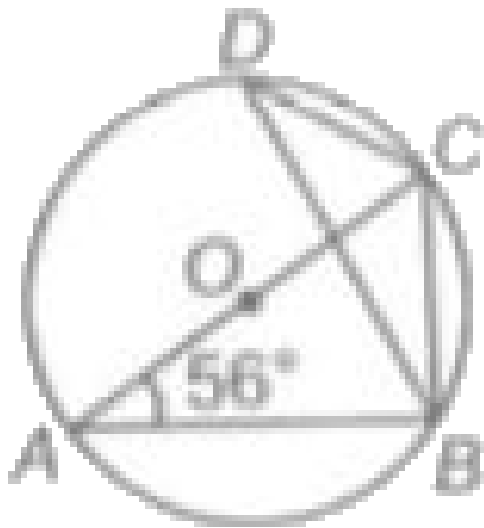
Answer: D



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6. In the given figure, O is the centre of the circle and $\angle BAC = 56^\circ$. The measure of

$\angle BDC$ is _____



A. 46°

B. 40°

C. 56°

D. 50°

Answer: C

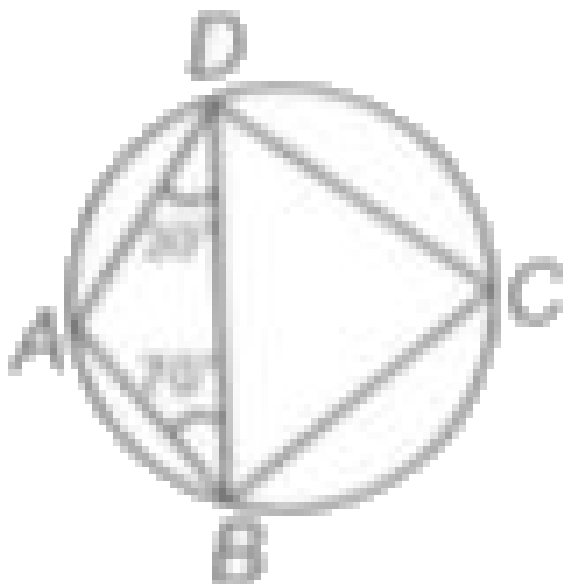


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7. In the given figure,

$\angle ABD = 70^\circ$, $\angle ADB = 30^\circ$ Then, $\angle BCD$

is _____.



A. 90°

B. 80°

C. 100°

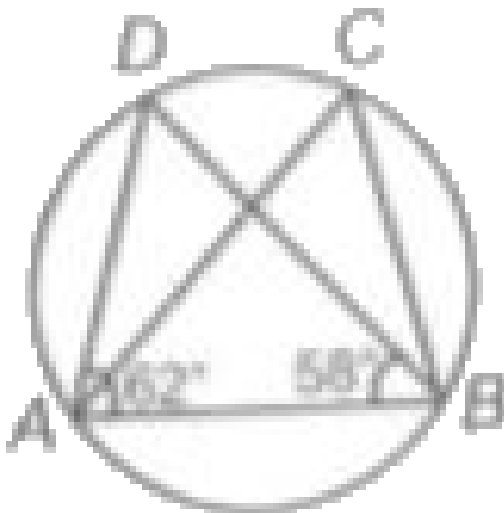
D. 120°

Answer: C



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8. In the given figure, if $\angle DAB = 62^\circ$ and $\angle ABD = 58^\circ$, then $\angle ACB$ is equal to _____.



A. 60°

B. 58°

C. 62°

D. None of these

Answer: A



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9. AD is the diameter of a circle and AB is a chord. If $AD = 34$ cm, $AB = 30$ cm, the distance of AB from the centre of the circle is

A. 17 cm

B. 8 cm

C. 4 cm

D. 15 cm

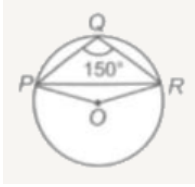
Answer: B



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10. In the given figure, $\angle PQR = 150^\circ$ where P, Q and R are points on a circle with centre O.

Then $\angle OPR$ is _____.



A. 80°

B. 50°

C. 40°

D. 60°

Answer: D



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11. PQRS is a cyclic quadrilateral such that PR is a diameter of the circle. If $\angle QPR = 67^\circ$ and $\angle SPR = 72^\circ$, then $\angle QRS =$ _____

A. 41°

B. 23°

C. 67°

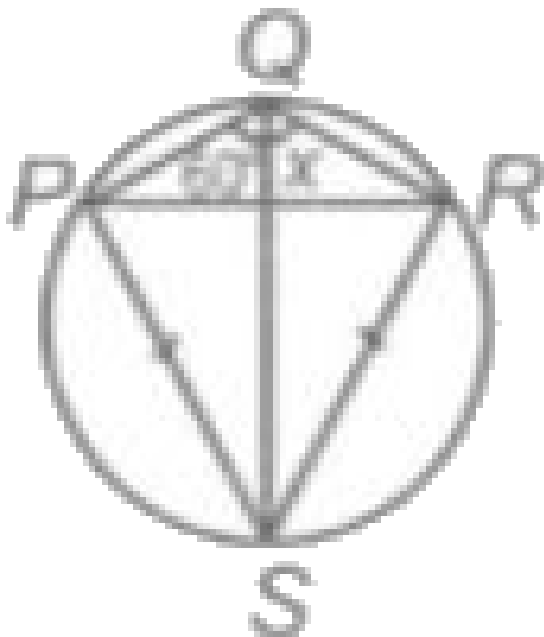
D. 18°

Answer: A



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12. In the given figure, PQRS is a cyclic quadrilateral in which $PS = RS$, $\angle SQR = x$ and $\angle PQS = 60^\circ$, The value of x is _____.



A. 30°

B. 60°

C. 75°

D. 80°

Answer: B



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13. A,B,C and D are four points on a circle. AC and BD intersect at a point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. Find $\angle BAC$?

A. 110°

B. 100°

C. 90°

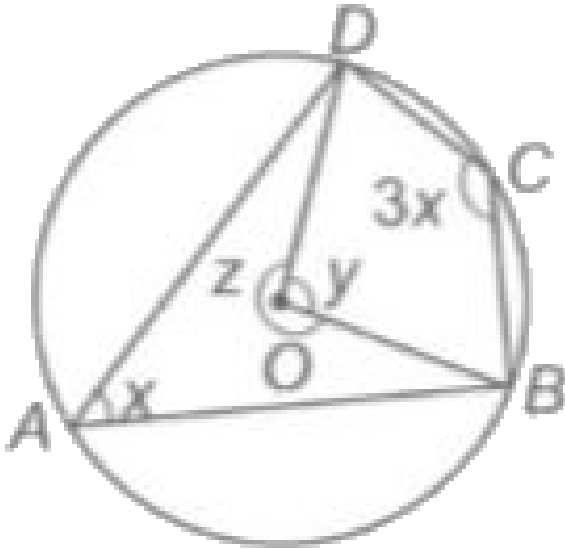
D. 120°

Answer: A



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14. In the given figure, O is the centre of the circle. Find the values of x, y and z.



A. $40^\circ, 90^\circ, 250^\circ$

B. $45^\circ, 90^\circ, 270^\circ$

C. $45^\circ, 80^\circ, 270^\circ$

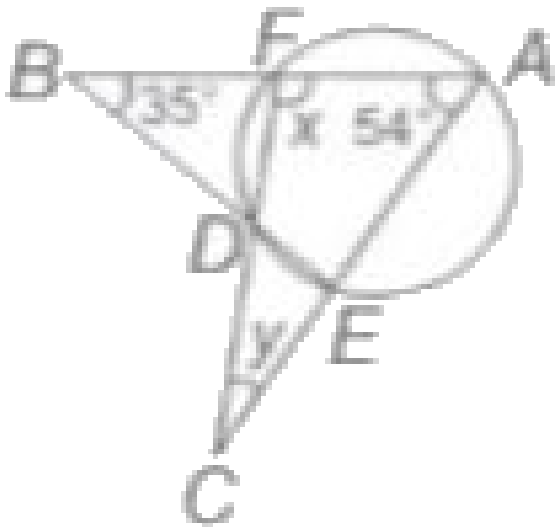
D. None of these

Answer: B





15. In the given figure, AEDF is a cyclic quadrilateral. The values of x and y respectively are



A. 79° , 47°

B. 89° , 37°

C. 89° , 47°

D. 79° , 37°

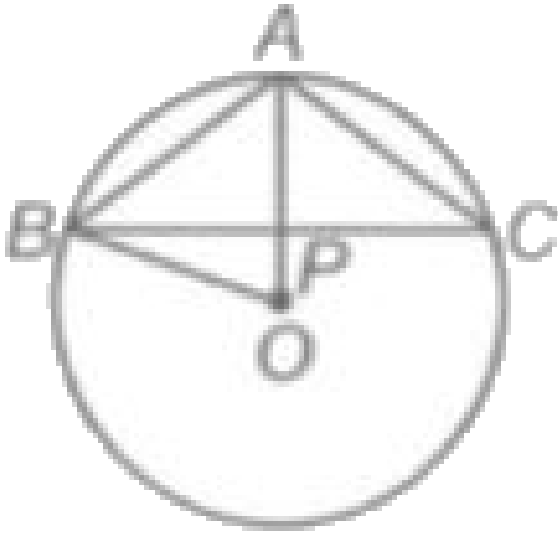
Answer: B



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16. O is the centre of the circle having radius 5 cm. AB and AC are two chords such that AB =

$AC = 6$ cm. If OA meets BC at P , then $OP =$



A. 3.6 cm

B. 1.4 cm

C. 2 cm

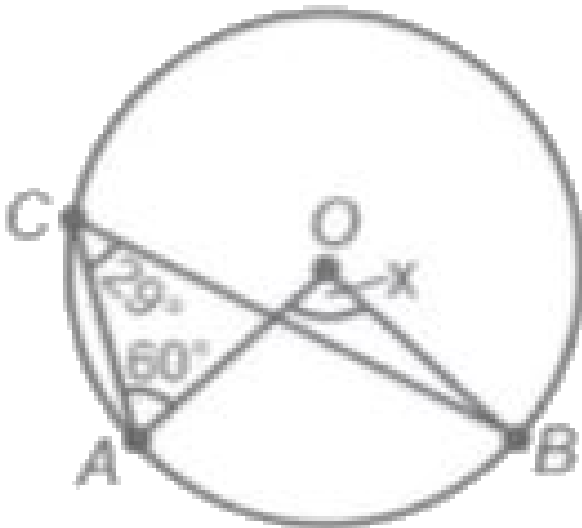
D. 3 cm

Answer: B



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17. In the given figure, if O is the centre of the circle, then $x =$ _____



A. 29°

B. 40°

C. 58°

D. 38°

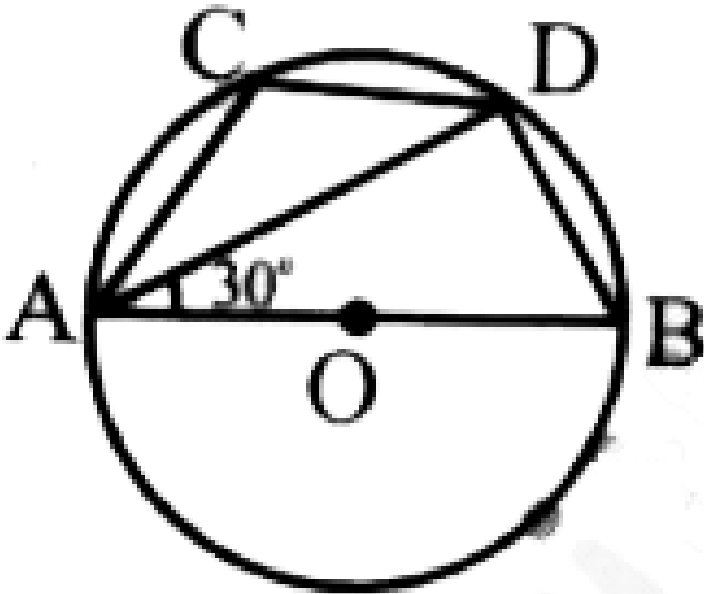
Answer: C



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Achievers Section Hots

1. In the given figure, AOB is a diameter of a circle and $CD \parallel AB$. If $\angle BAD = 30^\circ$, then $\angle CAD = ?$



A. 30°

B. 60°

C. 45°

D. 50°

Answer: A



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2. State 'T' for true and 'F' for false.

(i) A segment of a circle is the region between an arc and radius of the circle.

(ii) The line joining the mid-point of a chord to the centre of a circle passes through the mid-

point of the corresponding minor arc.

(iii) Angles inscribed in the same arc of a circle are equal.

A. (i) (ii) (iii)
 F T T

B. (i) (ii) (iii)
 T F T

C. (i) (ii) (iii)
 F T F

D. (i) (ii) (iii)
 T T F

Answer: A



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3. Two circles intersect at two points A and B. If AD and AC are diameters of the circles, then which of the following steps is INCORRECT in order to prove that B lies on the line segment DC?

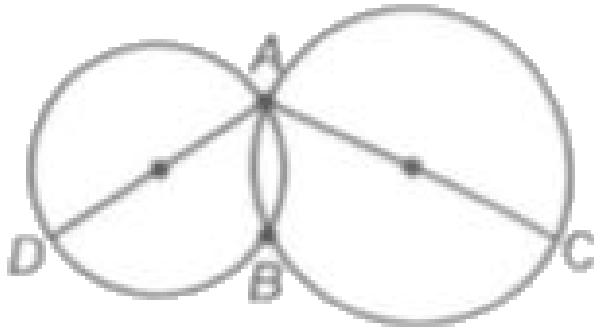
(P) Join AB.

(Q) $\angle ABD = 90^\circ$ and $\angle ABC = 90^\circ$ (Angle in semicircle)

(R) $\angle ABD + \angle ABC = 360^\circ$

(S) DBC is a straight line segment. Hence B lies

on the line segment DC.



A. P

B. Q

C. R

D. S

Answer: C



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