MATHS

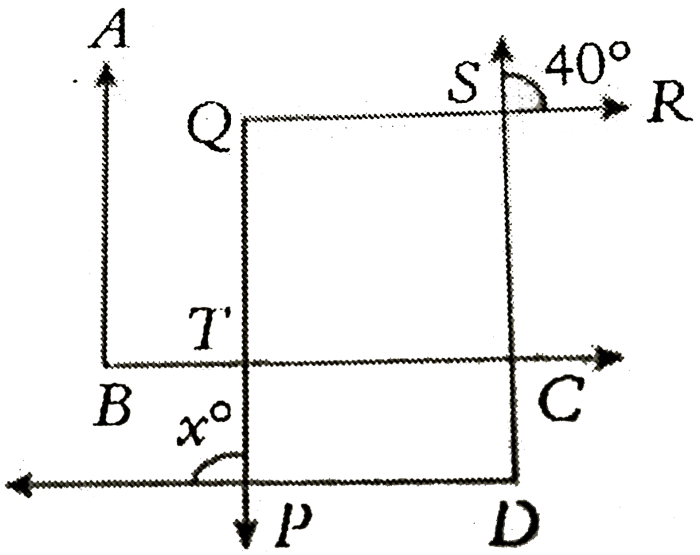
BOOKS - PEARSON IIT JEE FOUNDATION

GEOMETRY

EXAMPLE

1. In the given figure (not to scale), $\overline{AB}||\overline{QP}||\overline{SD}|$ and also $\overline{QR}$ | | $\overline{DP}$.

Find x



Watch Video Solution

2. Divide line segment $AB = 10$ cm into six equal parts.

View Text Solution

3. Draw a line segment of length 8 cm and divides it in the ratio $2:3$

Watch Video Solution

4. The sides of ΔABC measure 5 cm, 12 cm and 13 cm. What type of a triagnel is ABC ?

Watch Video Solution

5. The ratio of the angles A, C and B of triangle ABC is $1:1:2$. If the equal sides meausre 10 cm each, what is the length of the longest side ?

Watch Video Solution

6. In ΔPQR, $\angle P = 40^\circ$ and $\angle Q = 60^\circ$. Find $\angle R$

Watch Video Solution

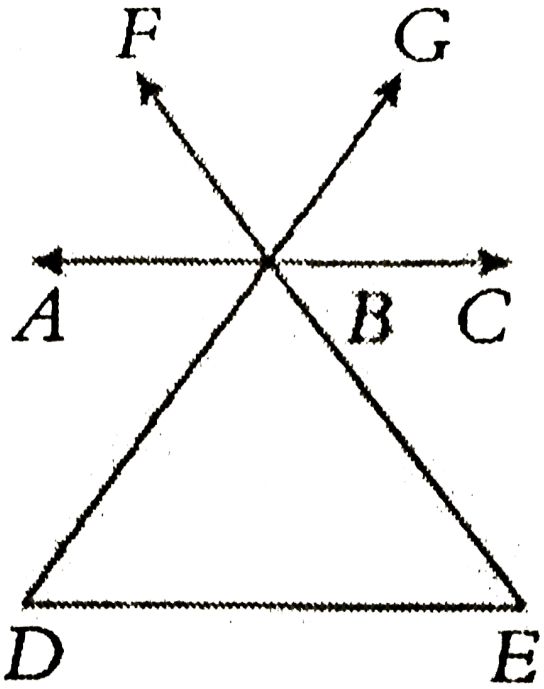
7. In ΔABC, $AB = 10$ cm and $BC = 8cm$. Find the range of values that CA can take.

Watch Video Solution

8. In ΔABC, $AC = BC$ and $\angle BAC = 70^\circ$. Find $\angle BCA$

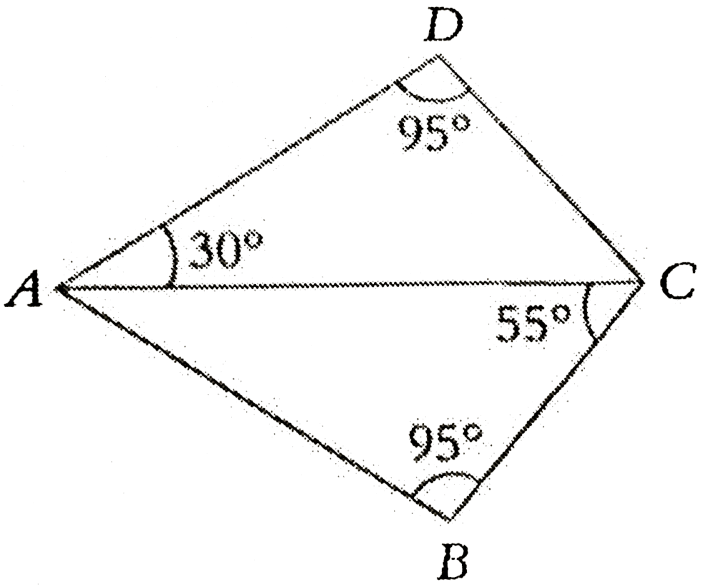
Watch Video Solution

9. In the adjacent figure, BDE is a triangle in which EB is produced to F and DB is produced to G. If $\angle DBE = x^\circ = \angle FBG = (x+2)^\circ$ and $\angle BED = (x+7)^\circ$, then the value of x is



Watch Video Solution

10. In the following figure, $\angle DAC = 30^\circ$, $\angle ABC = \angle ADC = 95^\circ$ and $\angle BCA = 55^\circ$. If the area of ΔACD is $30cm^2$, what is the area of ΔABC ?



Watch Video Solution

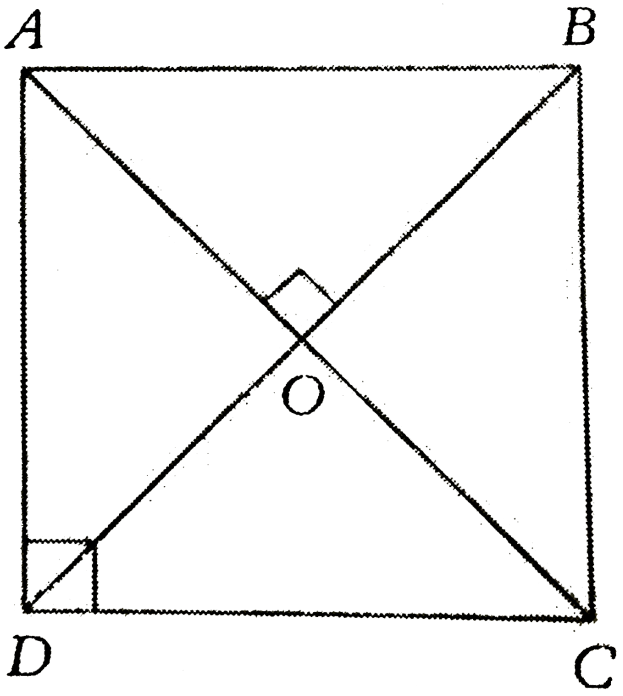
11. In the given figure (not to scale) $\overline{AB} \parallel \overline{CD}$. Which of the following is true?

(a) $\Delta AOB \cong \Delta COD$

$(b) \Delta BOC \cong \Delta DOA$

(c) Both (a) and (b)

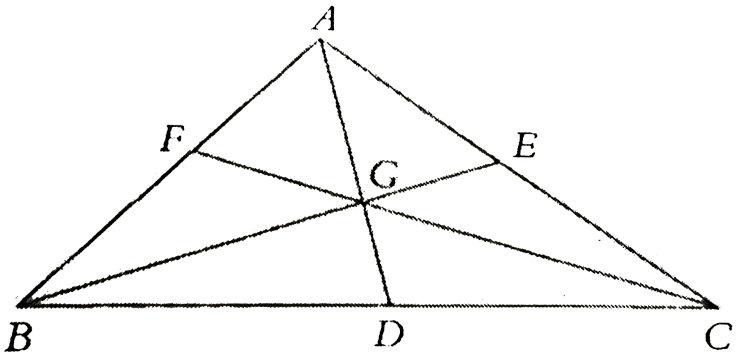
(d) Neither of these



View Text Solution

12. In the given ΔABC, $\overline{AD}$, $\overline{BE}$ and $\overline{CF}$ are the medians. G is centroid.

What is the ratio of the area of ΔBGD and ΔGCE?



Watch Video Solution

13. In the given triangle , if the length of $AD = 12$ cm, what is the length of GD ?

Watch Video Solution

14. Draw the perpendicular bisector of the line segment $AB = 5$ cm.

Watch Video Solution

15. Draw the bisector of $\angle AOB = 60^\circ$.

Watch Video Solution

16. Construct triangle ABC in which $AB = 4.5cm$, $BC = 2.7cm$ and $\angle B = 54^\circ$

Watch Video Solution

17. Construct a triangle PQR in which $PQ = 3$ cm and $\angle P = 45^\circ$ and $\angle = 105^\circ$.

Watch Video Solution

18. Prove $\frac{x}{a} > \frac{y}{b}$ if $x > y$ and $b < 0$.

Watch Video Solution

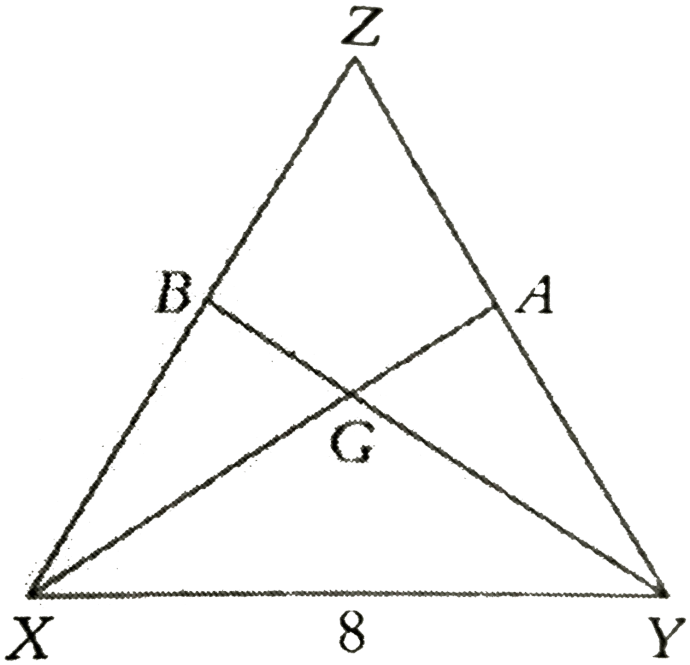
19. Construct the incircle for the triangle XYZ in which $\angle Y = 90^\circ$, $XY = 6$ cm and $YZ = 4cm$.

View Text Solution

20. BO and CO are external bisector of $\angle B$ and $\angle C$ of $\triangle$ ABC intersecting at O. If $\angle A = 60^\circ$, $\angle ABC = 70^\circ$, Find $\angle BOC$

Watch Video Solution

21. Construct a triangle XYZ in which XY $= 8$ cm , the median XA drawn from X to YZ is 6.6 cm and the median YB drawn from Y to XY is 7.2 cm.



View Text Solution

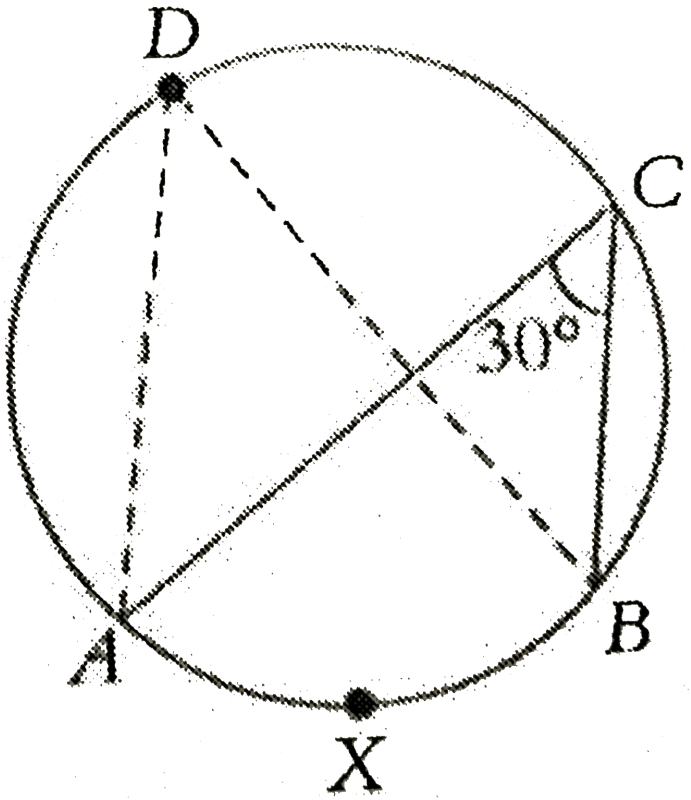
22. Construct a triange ABC in which AD,BE and CF are the medians with $AD = 5.4cm$, $BE = 6$ cm and $CF = 8.1cm$.

View Text Solution

23. In a circle of radius 13 cm, AB and CD are two equal and chords of lengths 24 cm each .What is the distance between the chords ?

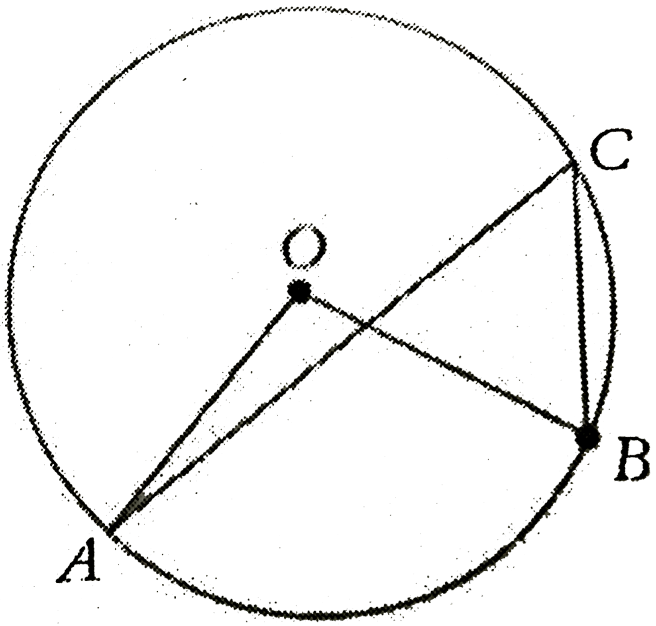
Watch Video Solution

24. In the adjoining figure, AXB is an arc of the circle. C and D are the points on the remaining part of the circle.



View Text Solution

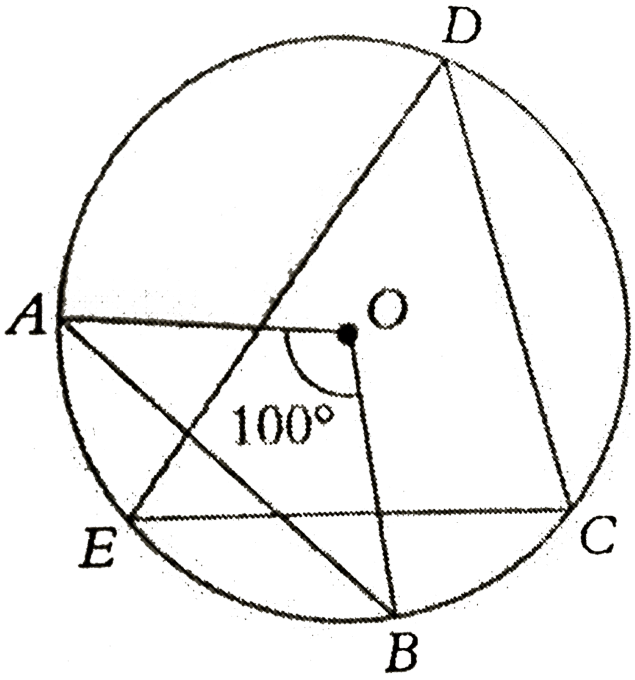
25. In the adjoining figure, O is the centre of the circle. AB is an arc of the circle and $\angle AOB = 80^\circ$. Find $\angle ACB$.



Watch Video Solution

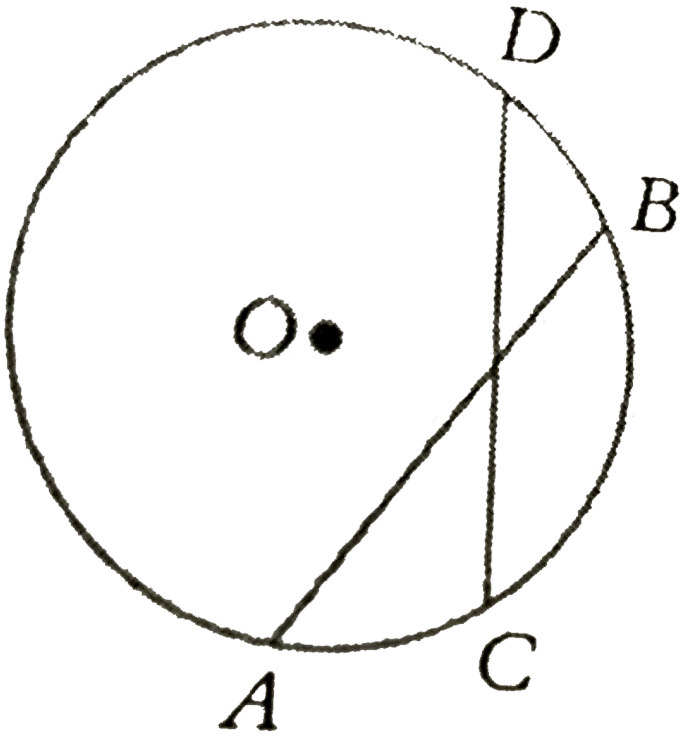
26. In the adjoining figure, O is the centre of the circle. AB and CD are equal chords.

If $\angle AOB = 100^\circ$, then find $\angle CED$.



Watch Video Solution

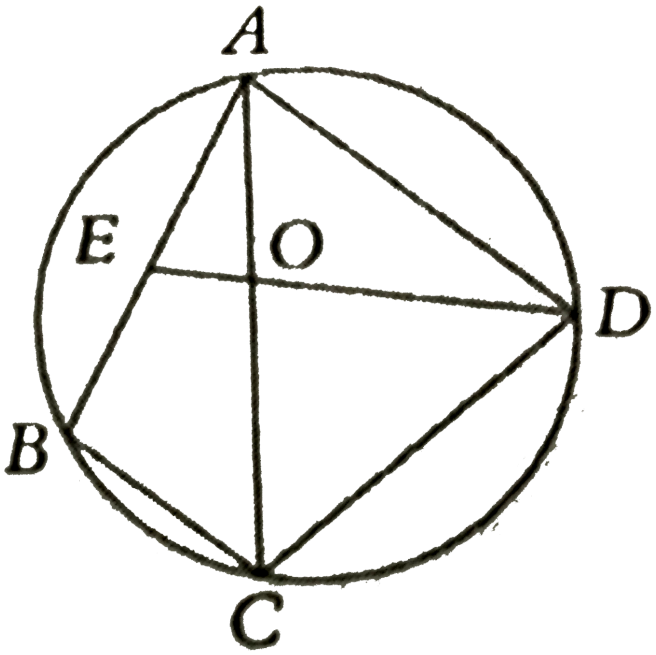
27. In the given figure, AB and CD are two equal chords. If O is the centre of the circle , $\angle AOB = 120^\circ$, then find $\angle OCD$.



Watch Video Solution

28. In the given figure (no to scale), ABCD is a cyclic quadrilateral, $\overline{DE} \perp \overline{AB}, \angle BAO = 40^\circ = 40^\circ, \angle OAD = 20^\circ$ and

$\angle OCD = 50^\circ \angle ABC =$



Watch Video Solution

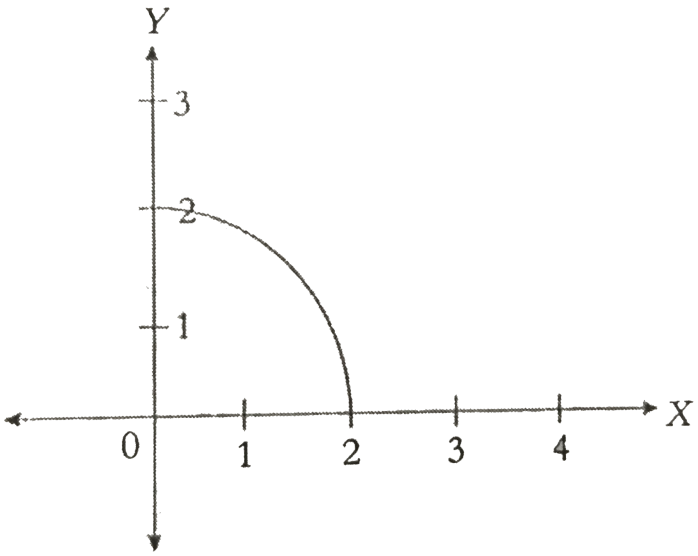
29. Determine the line of symmetry of a triangle ABC in which $\angle A = 70^\circ$ and $\angle B = \angle C = 55^\circ$.

Watch Video Solution

30. Determine the point of symmetry of a regular octagon.

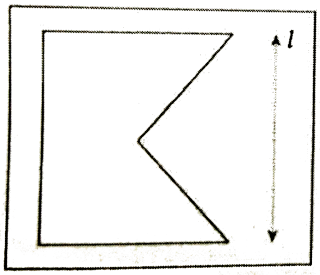
Watch Video Solution

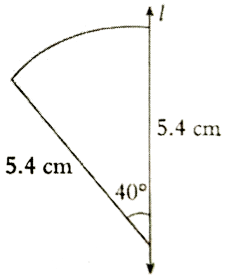
31. Complete the following figure so that Y-axis is the line of symmetry of the completed figure.



Watch Video Solution

32. Determine the images of the following figure about the given line.





Watch Video Solution

33. Divide line segment AB=10 cm into six equal parts.

Watch Video Solution

34. Draw a line segment of length 8 cm and divides it in the ratio $2:3$

Watch Video Solution

35. The sides of ΔABC measure 5 cm, 12 cm and 13 cm. What type of a triagnel is ABC ?

Watch Video Solution

36. The ratio of the angles A, C and B of triangle ABC is $1:1:2$. If the equal sides meausre 10 cm each, what is the length of the longest side ?

Watch Video Solution

37. In ΔPQR, $\angle P = 50^\circ$ and $\angle Q = 60^\circ$. Find `angleR.

Watch Video Solution

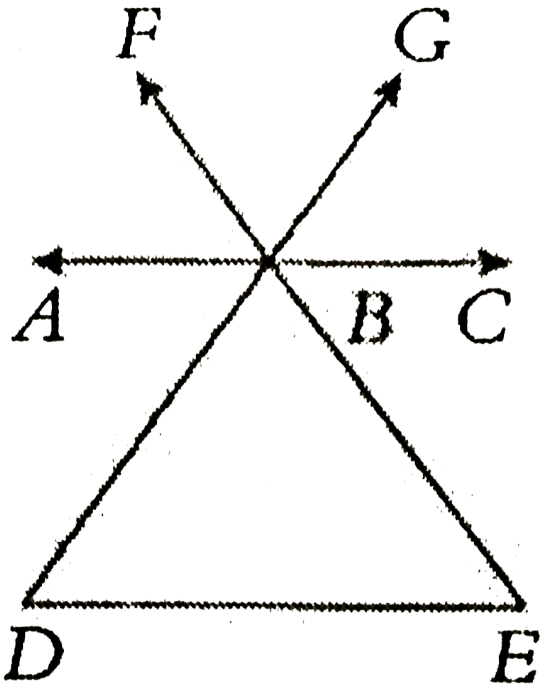
38. In ΔABC, $AB = 10$ cm and $BC = 8cm$. Find the range of values that CA can take.

Watch Video Solution

39. In ΔABC, $AC = BC$ and $\angle BAC = 50^\circ$. Find $\angle BCA$.

Watch Video Solution

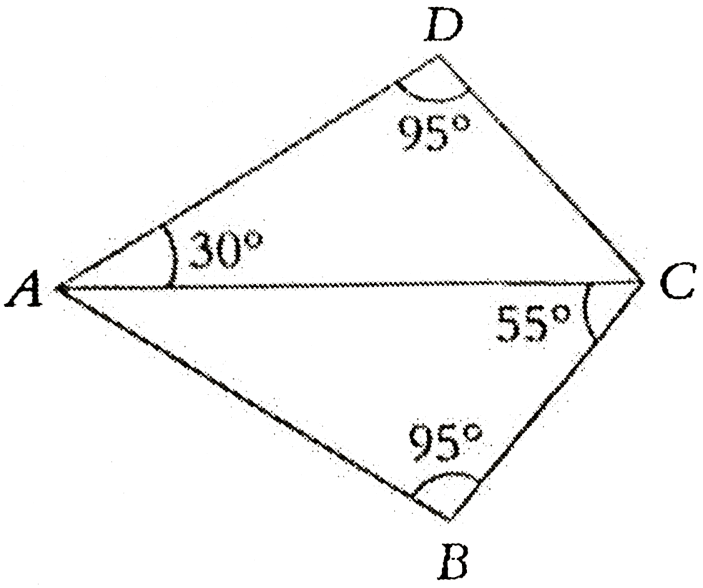
40. In the adjacent figure, BDE is a triangle in which EB is produced to F and DB is produced to G. If $\angle DBE = x^\circ = \angle FBG = (x+2)^\circ$ and $\angle BED = (x+7)^\circ$, then the value of x is



Watch Video Solution

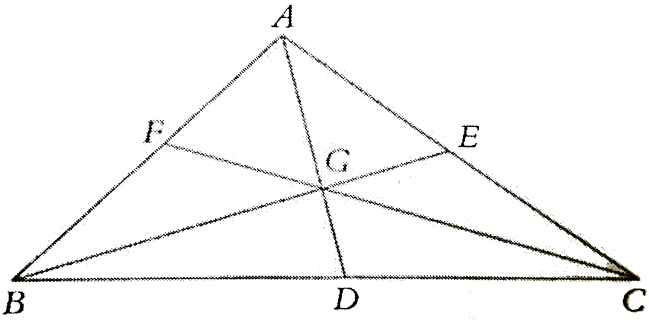
Watch Video Solution

41. In the following figure, $\angle DAC = 30^\circ$, $\angle ABC = \angle ADC = 95^\circ$ and $\angle BCA = 55^\circ$. If the area of ΔACD is $30 cm^2$, what is the area of ΔABC ?



Watch Video Solution

42.



In the above ΔABC, $\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ are the medians. G is the centroid. What is the ratio of the areas of ΔBGD and ΔGCE?

Watch Video Solution

43. In the given triangle , if the length of $AD = 12$ cm, what is the length of GD ?

Watch Video Solution

44. Draw the perpendicular bisector of the line segment $AB = 5$ cm.

Watch Video Solution

45. Draw the bisector of $\angle AOB = 60^\circ$.

Watch Video Solution

46. Construct triangle ABC in which $AB = 4.5cm$, $BC = 2.7cm$ and $\angle B = 54^\circ$

Watch Video Solution

47. Construct a triangle PQR in which PQ= 2cm. $\angle P = 45^\circ$, and $\angle Q = 105^\circ$.

Watch Video Solution

48. Can we construct a triangle ABC in which $AB = 3$ cm, $BC = 4$ cm and $AC = 8$ cm ?

Watch Video Solution

49. The following sentences are the steps involved in construction of the incircle for the triangle XYZ in which $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4$ cm.

Arrange them in sequential order from the first to the last.

(A) Mark the foot of the perpendicular from I onto YZ as D.

(B) Construct the triangle XYZ with $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4cm$.

(C) Draw a circle with I as the centre and ID as radius. This is the required incircle.

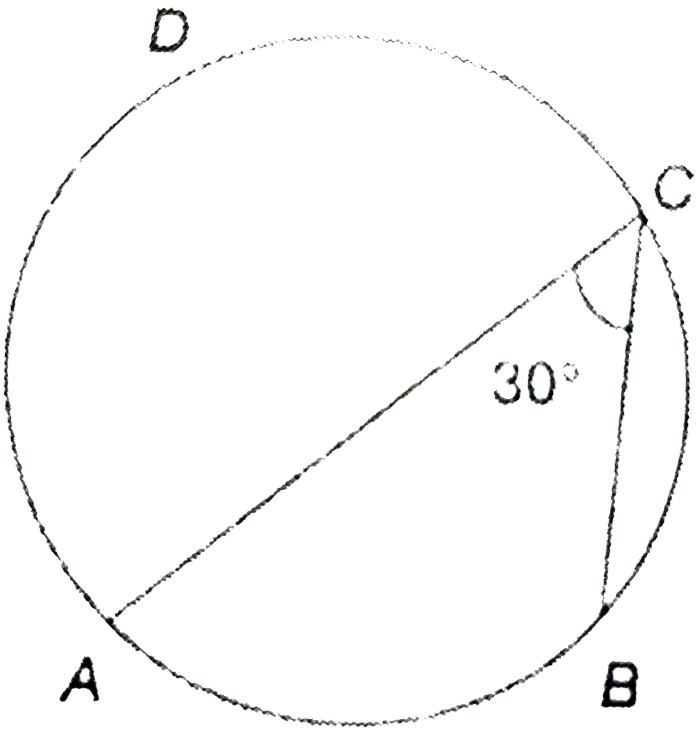
(D) Draw the bisectors of $\angle X$, $\angle Y$ and $\angle Z$ and mark their point of concurrence as I.

Watch Video Solution

50. In a circle of radius 13 cm, AB and CD are two equal and chords of lengths 24 cm each .What is the distance between the chords ?

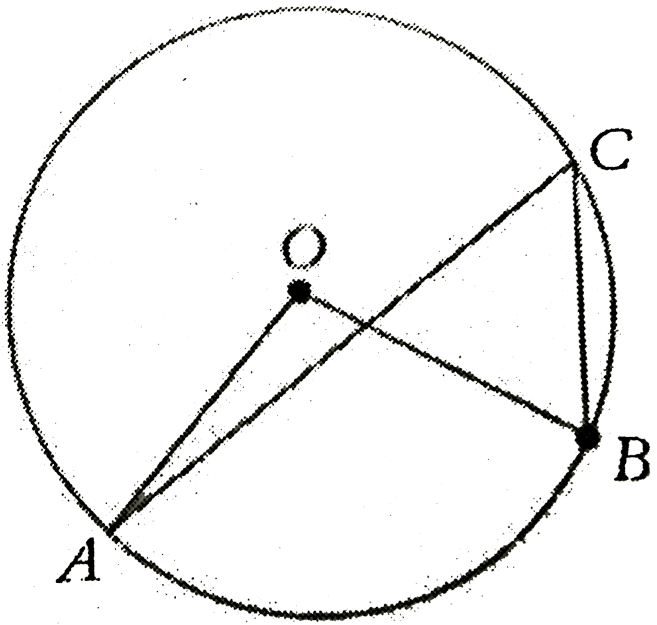
Watch Video Solution

51. In the following figure, AB is an arc of the circle, C and D are the points on the circle. If $\angle ACB = 30^\circ$, Find $\angle ADB$.



Watch Video Solution

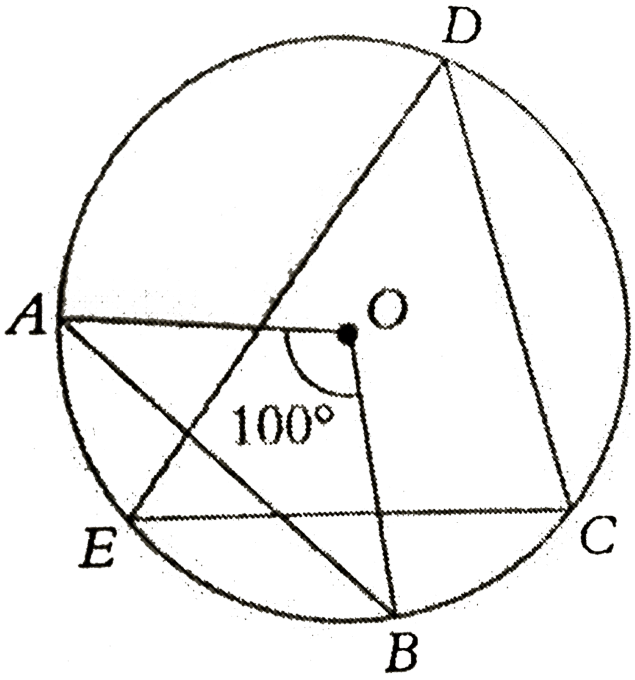
52. In the adjoining figure, O is the centre of the circle. AB is an arc of the circle and $\angle AOB = 80^\circ$. Find $\angle ACB$.



Watch Video Solution

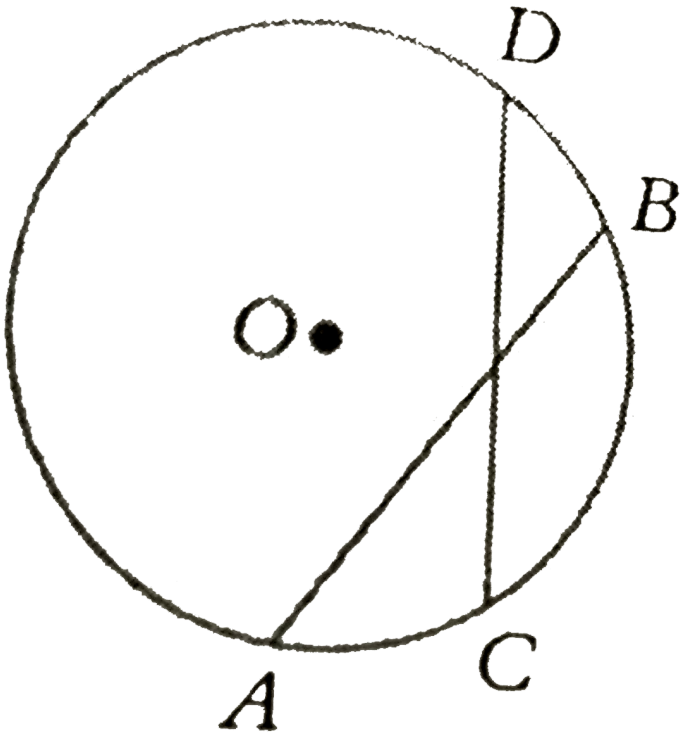
53. In the adjoining figure, O is the centre of the circle. AB and CD are equal chords.

If $\angle AOB = 100^\circ$, then find $\angle CED$.



Watch Video Solution

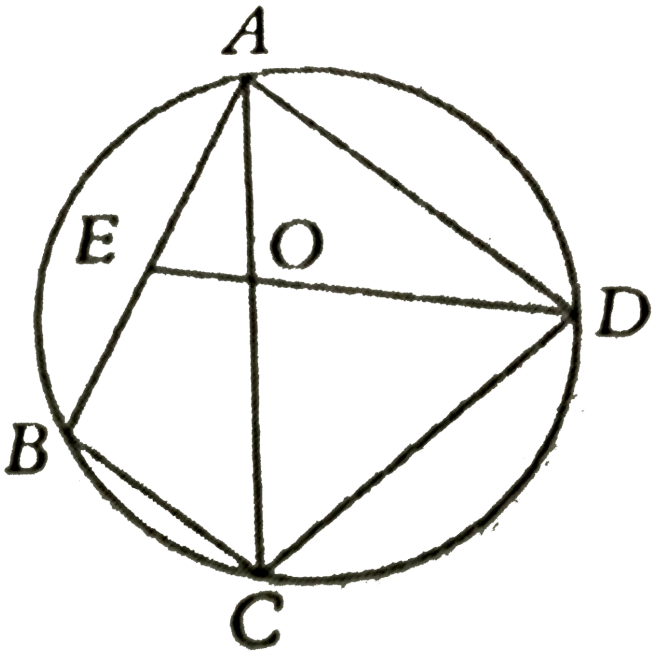
54. In the given figure, AB and CD are two equal chords. If O is the centre of the circle , $\angle AOB = 120^\circ$, then find $\angle OCD$.



Watch Video Solution

55. In the given figure (no to scale), ABCD is a cyclic quadrilateral, $\overline{DE} \perp \overline{AB}, \angle BAO = 40^\circ = 40^\circ, \angle OAD = 20^\circ$ and

$\angle OCD = 50^\circ \angle ABC =$



Watch Video Solution

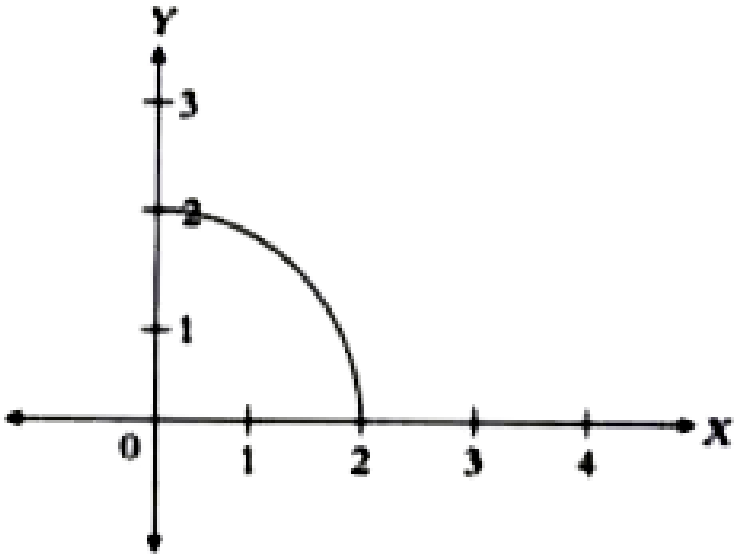
56. Determine the line of symmetry of a triangle ABC in which $\angle A = 70^\circ$ and $\angle B = \angle C = 55^\circ$.

Watch Video Solution

57. Determine the point of symmetry of a regular octagon.

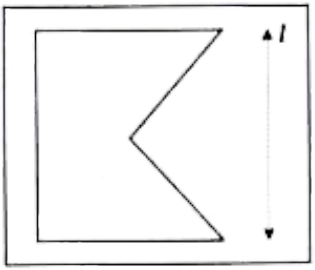
Watch Video Solution

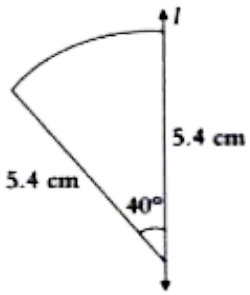
58. Complete the following figure so that Y- axis is the line of symmetry of the completed figure .



Watch Video Solution

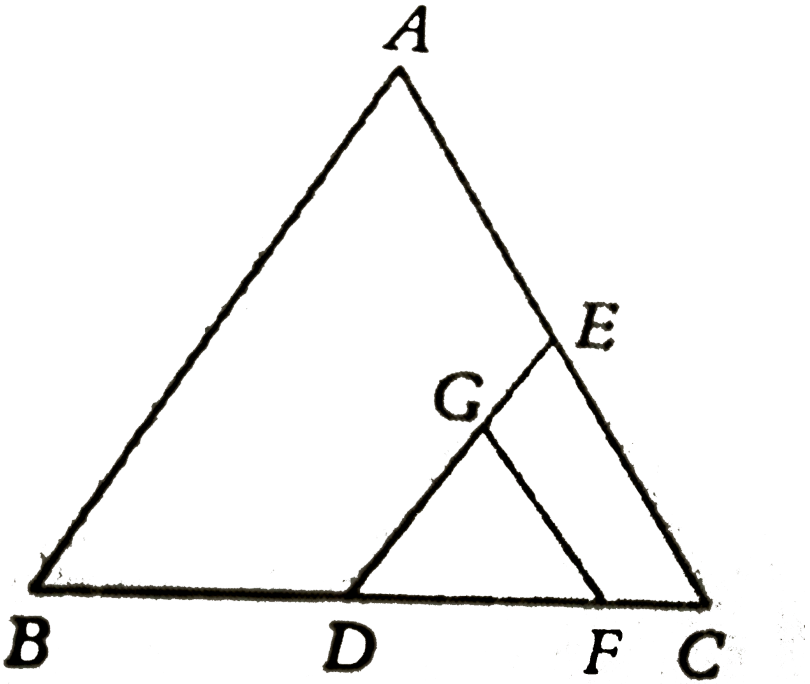
59. Determine the images of the following figure about the given line :





Watch Video Solution

very short answer type question



1.

In the above figure (not to scale) , $AB \| DE$ and $EC \| GF$. If $\angle EGF = 100^\circ$ and $\angle ECF = 40^\circ$, find the following .

(i) $\angle ABC$ (ii) $\angle GFC$

(iii) $\angle GDF$

Watch Video Solution

2. Which of the letters of the English alphabet have only one line of symmetry ?

Watch Video Solution

3. The angle whose supplement is three times its complement is _____.

A. 45°

B. 50°

C. 25°

D. 65°

Answer: A

Watch Video Solution

4. In ΔABC, if $\angle A < \angle B < 45^\circ$, then ABC is a/ an _____ triangle.

Watch Video Solution

5. In ΔABC, if $\angle A = 80^\circ$ and $AB = AC$, then $\angle B =$_ _ _ _ _ _ _ _.

Watch Video Solution

6. In $\Delta ABC, \angle A = \angle C = 50^\circ$. The longest side of $\Delta ABC$is _ _ _ _ _ _ _.

Watch Video Solution

7. If G is the centroid of ΔABC, then the area of ΔBGC is _____ times the area of quadrilateral ABCG.

Watch Video Solution

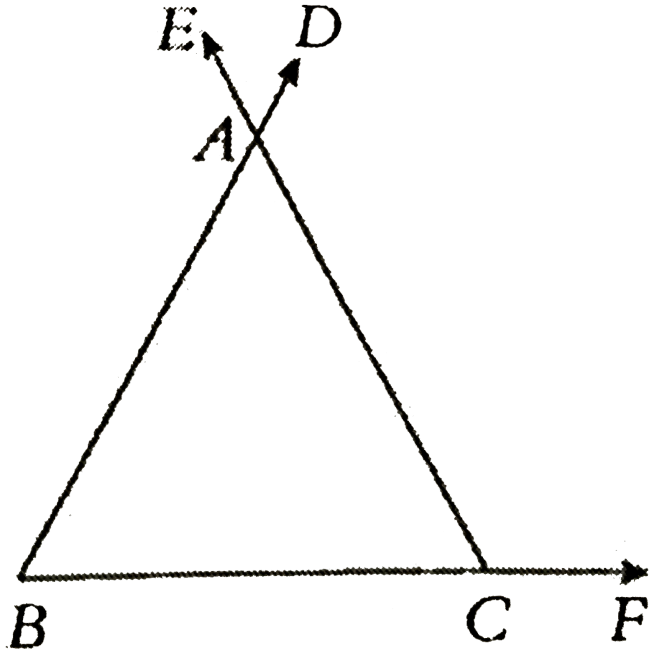
8. ABCD is a quadrilateral in which $\angle A = 60^\circ, \angle B = 70^\circ, \angle C = 110^\circ$ and $\angle D = 120^\circ$. The number of pairs of parallel lines is _____.

Watch Video Solution

9. Which of the following digits have two lines of symmetry ?

$0, 1, 2, 3, 4, 5, 6, 7, 8, 9$

Watch Video Solution



10.

In the above figure (not to scale) the sides BA,BC and CA of ΔABC are produced to D,F, and E respectively such that $\angle ACF = 120^\circ$ and $\angle BAE = 150^\circ$. Then $\angle ABC =$_ _ _ _.

Watch Video Solution

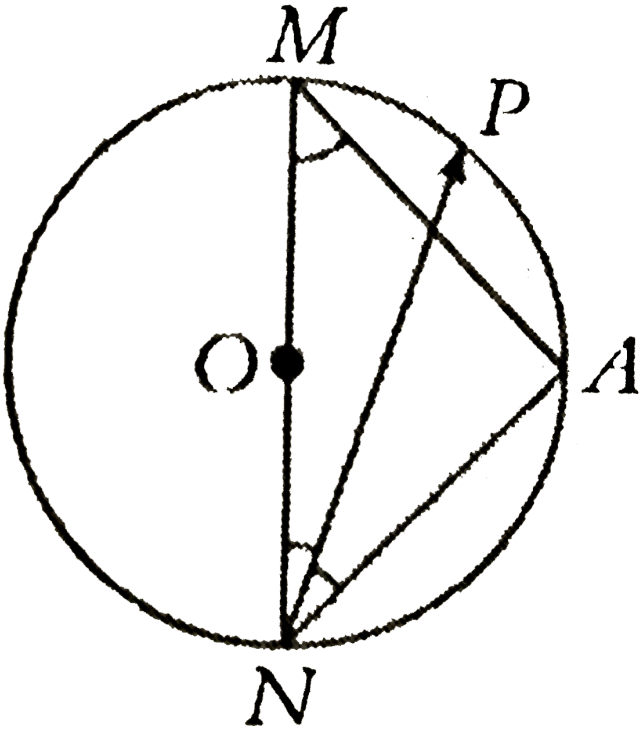
11. If all the sides of a polygon ABCDE are equal, then $\angle A = \angle C$. (Yes / No / May or May not be)

Watch Video Solution

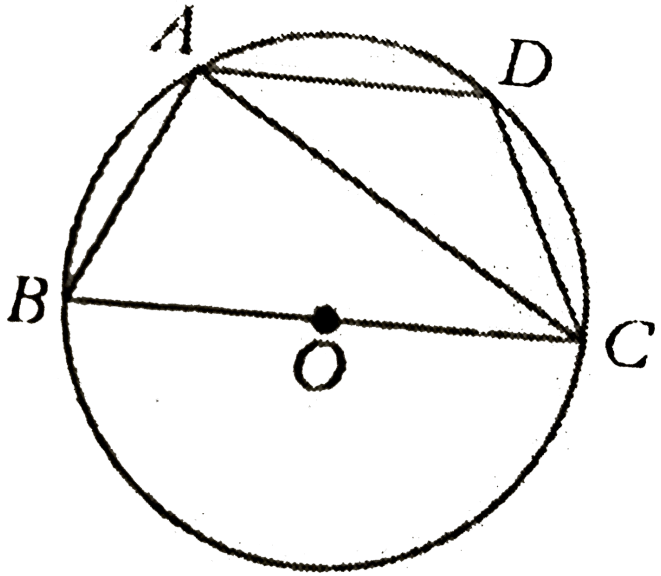
12. The chords which are equidistant from the centre of a circle are equal only if they are parallel to each other. [True / False]

Watch Video Solution

13. In the figure below, $\overline{MN}$ is the diameter of the circle with centre O. $\overline{NP}$ bisects the $\angle ANM$. If $\angle NMA = 33^\circ$, then find $\angle ANP$.



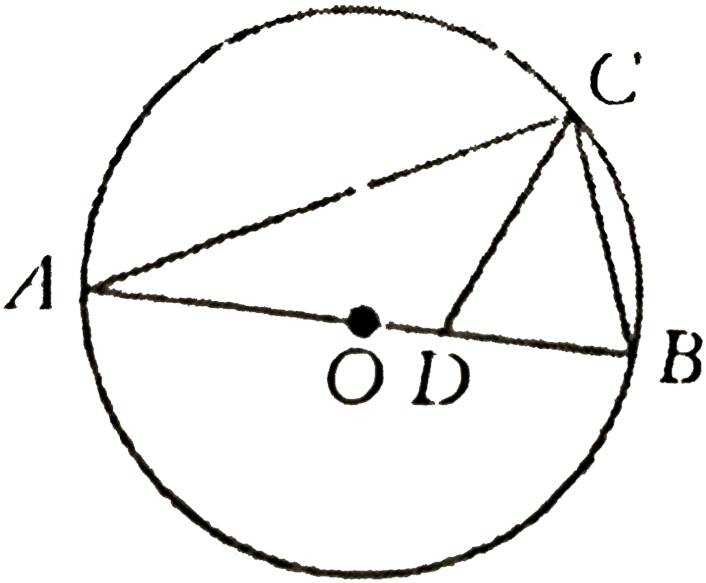
Watch Video Solution



14.

In the above figure, O is the centre of the circle AB,AD and CD are the chords . If $\angle ADC = 130^\circ$ then fid $\angle ACB$.

Watch Video Solution



15.

In the given figure, AB is the diameter and $\angle ADC = 2\angle BDC$. If $\angle BCD = 70^\circ$, then find the angle made by AC at the centre of the circle.

Watch Video Solution

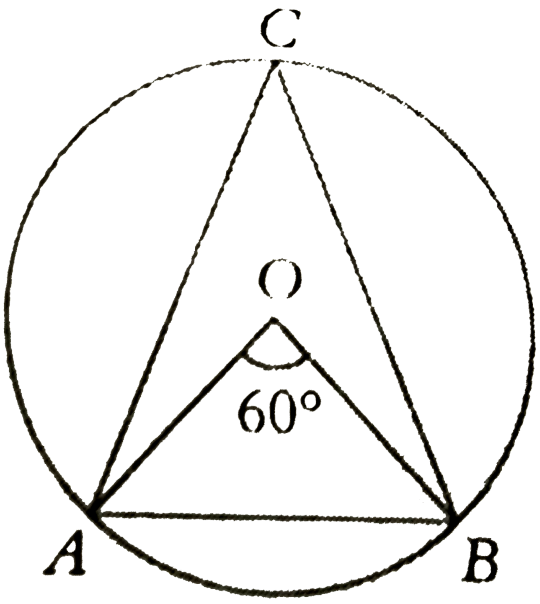
16. The distances of two chords AB and CD from the centre of a circle are 6 cm and 8 cm respectively. Then, which chord is longer?

Watch Video Solution

17. If three equal chords meet at three distinct points on the circle, then the angle between any two chords is _ _ _ _ _ _.

View Text Solution

18. In the following figure, if $\angle AOB = 60^\circ$ then $\angle ACB = 30^\circ$. [True / False / Cannot say]



Watch Video Solution

19. If the diagonals of a cyclic quadrilateral intersect at the centre of a circle , then the quadrilateral is _____.

Watch Video Solution

20. If two equal chords bisect each other, then the point of intersection of the chords coincides with their centre. [True / False]

Watch Video Solution

21. PS is the chord of the circle with centre O. A perpendicular is drawn from centre O of the circle to chord PS at M. If $\overline{PS} = 30cm$ and $\overline{OM} = 8cm$, then find the radius of the circle.

Watch Video Solution

22. The radius of a circle is 10cm. The length of a chord is 12 cm. Then the distance of the chord from the centre is _____.

Watch Video Solution

23. In a circle , chord AB subtends an angle of 60° at the centre and chord CD subtends 120°, at it. Then which chord is longer ?

Watch Video Solution

24. A line which bisects the diameter of a circle is perpendicular to the diameter. [True / False]

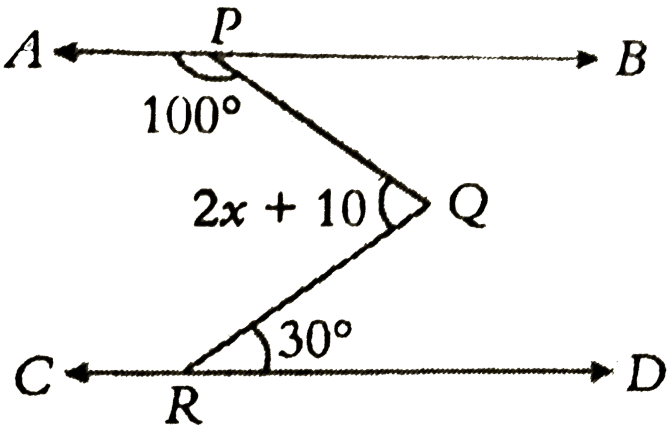
Watch Video Solution

25. AB and CD are equal and parallel chords of a circle with centre O. Then AC passes through the centre O. [Agree / Disagree]

Watch Video Solution

Short Answer Type Questions 31

1.

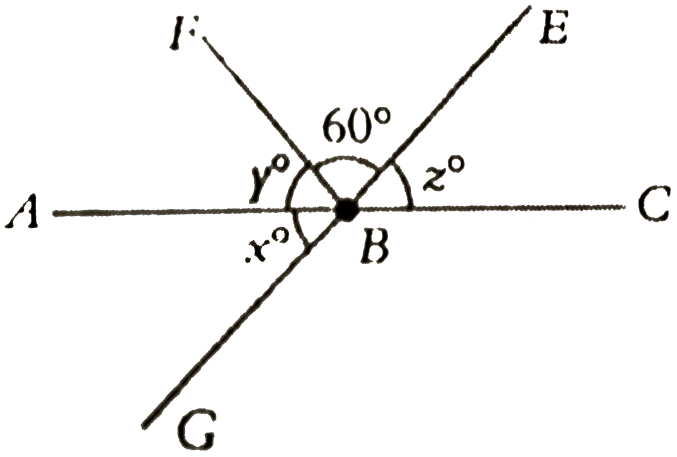


In the above figure, AB is parallel to CD. P and R are the points on AB and CD respectively. Q is in between AB and CD. Find the value of x in degrees

Watch Video Solution

2. In the figure below (not to scale), ABC is a straight line. If $\angle FBE = 60^\circ, \angle CBG = 120^\circ, \angle ABG = x^\circ, \angle ABF = gamm^\circ$ and

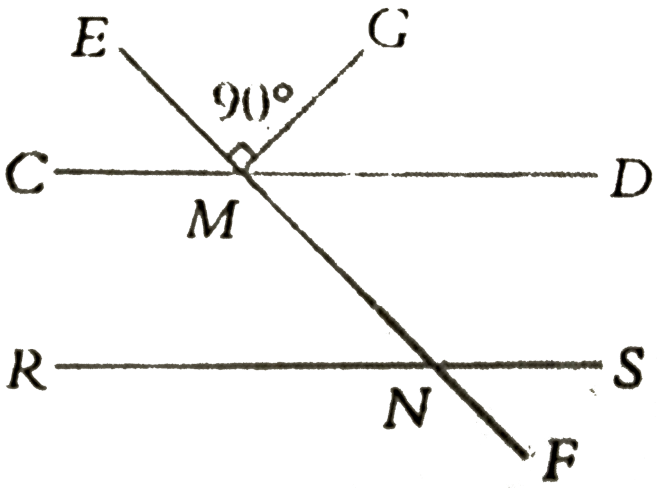
$\angle CBE = z^\circ = 2\gamma^\circ$, then $(x^\circ + z^\circ) : \gamma^\circ$ is



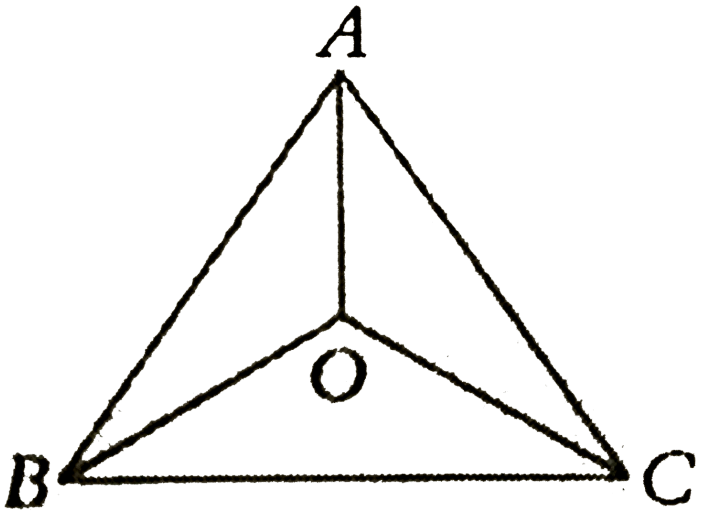
Watch Video Solution

3. In the figure below (not to scale) $\overline{CD} \mid \mid \overline{RS} \angle EMG = 90^\circ, \angle GMD = \gamma^\circ, \angle CME = x^\circ$ and

$\gamma^\circ = \frac{x^\circ}{2}$. $\angle FNS : \angle FNR$is



Watch Video Solution



4.

In the above ΔABC (not to scale), OA is the angle bisector of $\angle BAC$. If $OB = OC, \angle OAC = 40^\circ$ and $\angle ABO = 20^\circ$. If $\angle OCB = \frac{1}{2}\angle ACO$, then find $\angle BOC$.

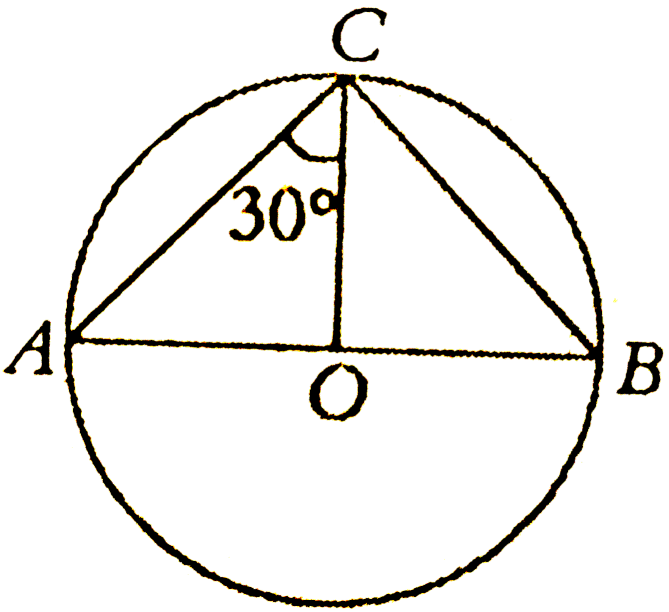
Watch Video Solution

5. The angles of a quadrilateral ABCD are $x^\circ, (x+1)^\circ, (x+2)^\circ$ and $(x+3)^\circ$, taken in the same order. Then the quadrilateral ABCD is necessarily a

Watch Video Solution

6. MN and PS are two equal chords of a circle drawn on either side of centre O of the circle . Both the chords are produced to meet at point A. If the radius of the circle is 10cm. $MN = 12$cm and OA $= 17$ cm , then find NA.

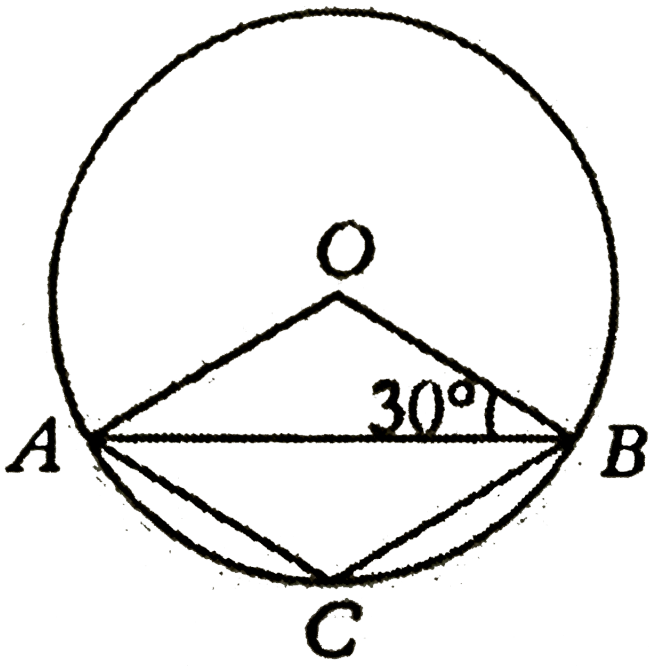
Watch Video Solution



7.

In the figure above (not to scale), AB is the diameter of the circle with centre O. If $\angle ACO = 30^\circ$, then find $\angle BOC$.

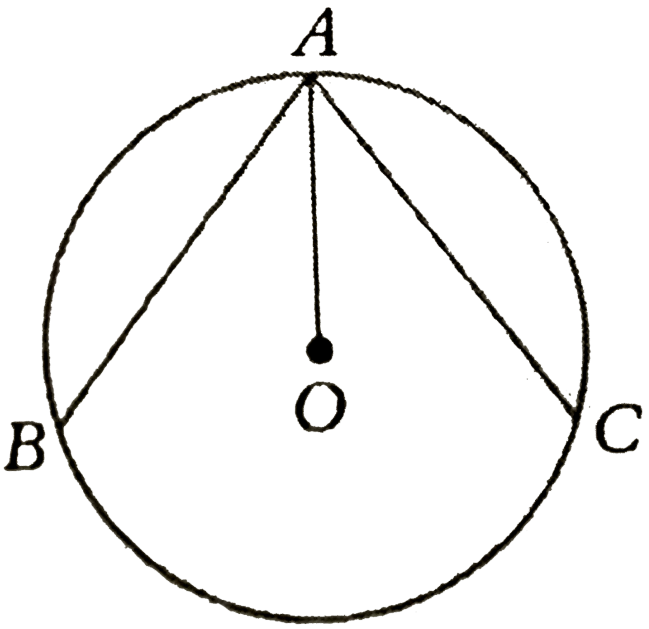
Watch Video Solution



8.

In the figure (not to scale), O is the centre of the circle and $\angle OBA = 30^\circ$. Find $\angle ACB$

Watch Video Solution

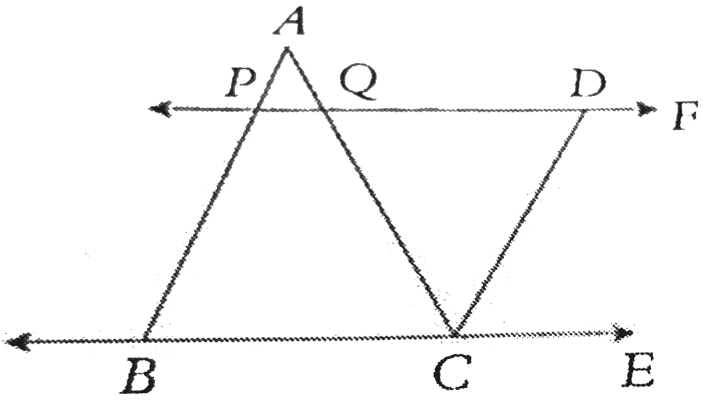


9.

In the figure above (not to scale), $AB = AC$ and $\angle BAO = 25^\circ$. Find $\angle BOC$, if O is the centre of the circle.

Watch Video Solution

Essay type Question

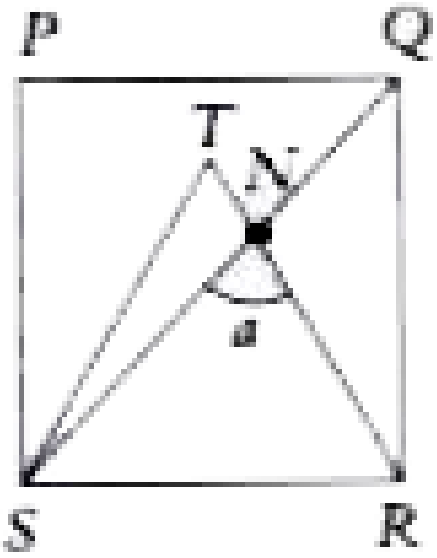


1. In the figure above (not to scale), $\overline{PF} \mid\mid \overline{BE}$ and $\overline{AB} \mid\mid \overline{CD}$. If $\angle FDC = 130^\circ$ and $\angle ACD = 20^\circ$, find $\angle ACB$ and $\angle ABC$

Watch Video Solution

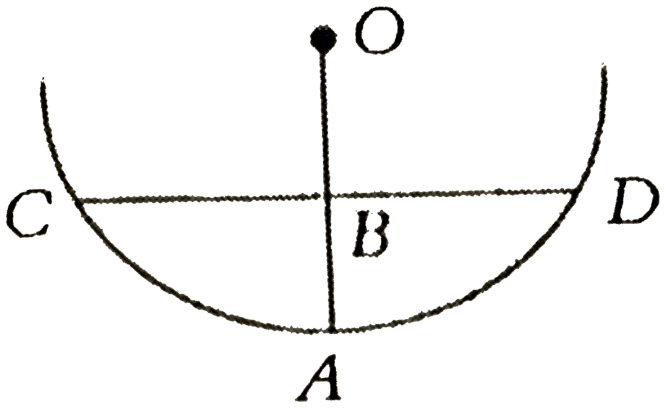
2. In the given below ,PQRS is a square and STR is an euilateral triangle .

Find the value of a .



Watch Video Solution

3. In the figure below, CD is a chord of the semi circle with centre O.



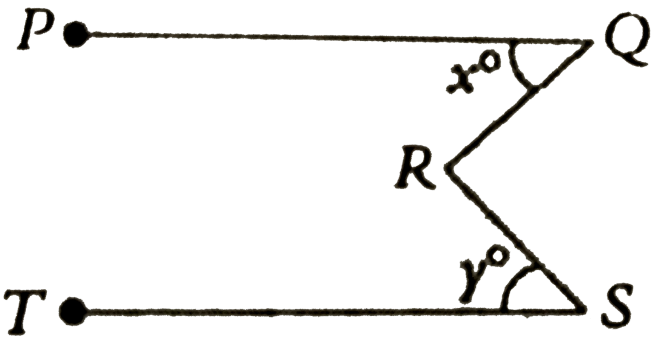
OA is the

radius of the circle. If $CD = 10$ cm, $AB = 2$ cm and $\overline{OA} \perp \overline{CD}$ the length of OB is _____

Watch Video Solution

Level 1

1. In the figure below (not to scale) , $\overline{PQ} \mid\mid \overline{TS}$, reflex $\angle QRS = 300^\circ$ and $x - y = 30^\circ$. The measure of y will be



A. 25°

B. 15°

C. 20°

D. 30°

Answer: B

Watch Video Solution

2. In a triangle ABC, if $\angle A > \angle B > \angle C$ and the measures of $\angle A, \angle B$ and $\angle C$ in degrees are integers, then the least possible value of $\angle A$ is

A. 70°

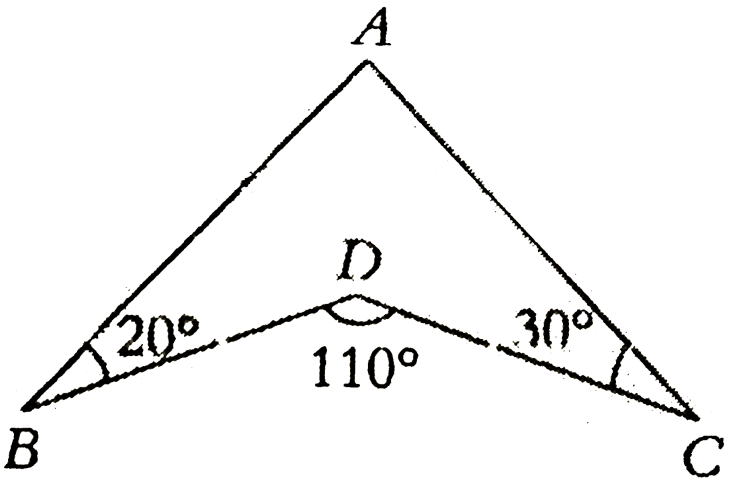
B. 65°

C. 60°

D. 61°

Answer: d

Watch Video Solution



3.

In the above figure, $\angle ABD = 20^\circ$, $\angle BDC = 110^\circ$ and $\angle DCA = 30^\circ$.

What is the value of $\angle BAC$?

A. 30°

B. 60°

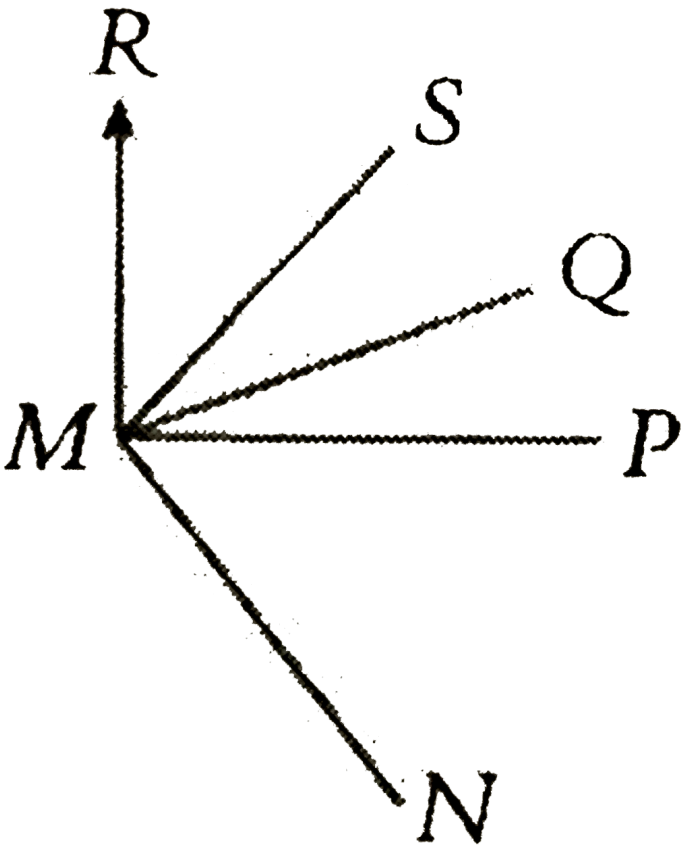
C. 90°

D. 120°

Answer: b

Watch Video Solution

4. In the figure below (not to scale), $\overline{MR} \perp \overline{MP}$, $\overline{MQ} \perp \overline{MN}$, and $\overline{MS}$ is bisector of $\angle RMQ$. If $\angle PMN = 50^\circ$, then find the measure of $\angle RMS$.



A. 25°

B. 20°

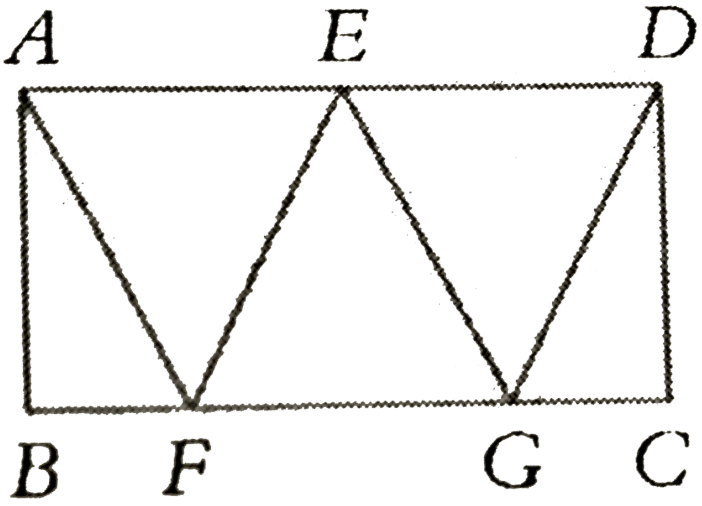
C. 30°

D. 35°

Answer: a

Watch Video Solution

5.



In the figure above (not to scale), $\overline{EF}||\overline{GD}, \overline{AF}||\overline{EG}, \overline{AD} \mid \mid \overline{BC}$ and $\angle DCG = 100^\circ$. If $\angle CDG = 40^\circ$, then find $\angle AEF$.

A. 30°

B. 40°

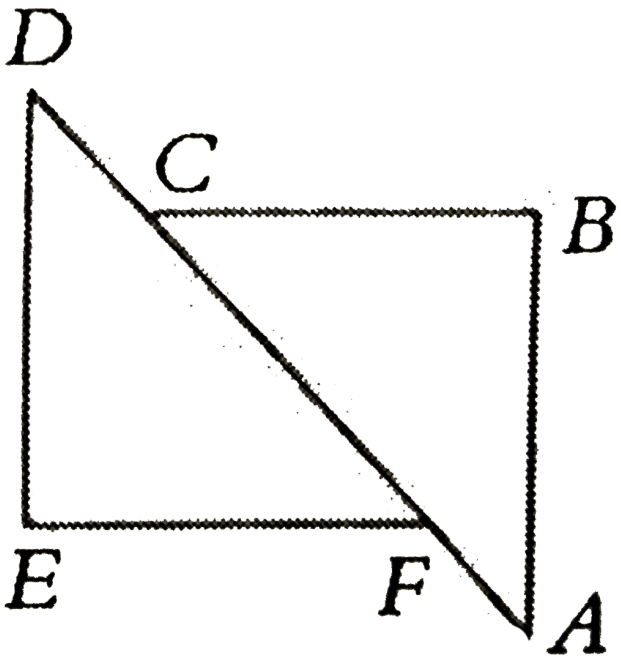
C. 150°

D. 60°

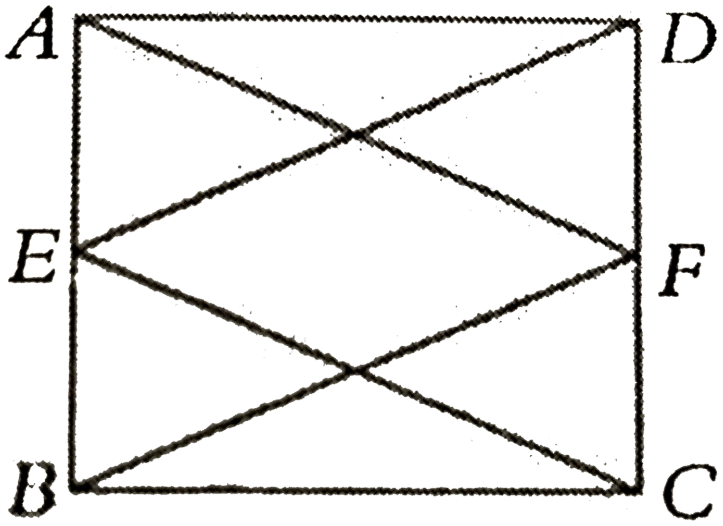
Answer: b

Watch Video Solution

6. In the figure below, $\overline{BC} \mid\mid \overline{EF}$, $BC = EF$ and $DF = AC$. Which of the following congurency axiom(s) is/ are suitable to prove that $\Delta BCA = \Delta EFD$?



Watch Video Solution



7.

In the above figure (not to scale), E and F are the mid points of AB and CD respectively.

$\overline{AB}||\overline{CD}$, $\overline{BC}||\overline{AD}$, $\angle ADE = 70^\circ$, AND $\angle BCE = 40^\circ$, $\angle DEC$ is

A. 70°

B. 40°

C. 110°

D. 120°

Answer: c

Watch Video Solution

8. What is the number of lines of symmetry for a parallelogram ?

A. 2

B. 4

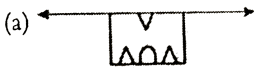
C. 0

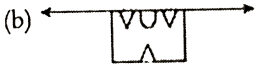
D. 6

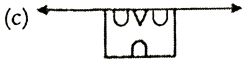
Answer: c

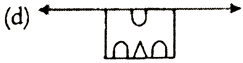
Watch Video Solution

9. Given below are some figures. Choose the image of the given figure with respect to the given line from the given choices.

A. 

B. 

C. 

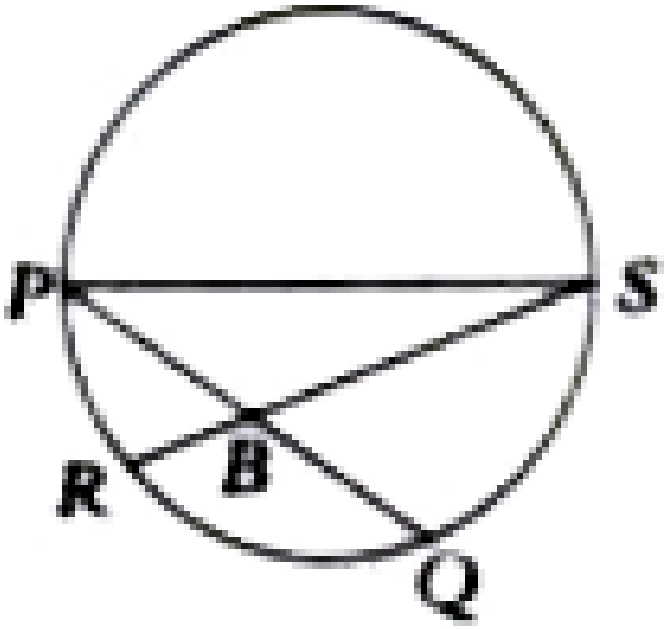
D. 

Answer: a

Watch Video Solution

10. In the given figure , PQ and RS are chords of length 10 cm each intersecting at B . If $\angle PBS = 90^\circ$ and the area of ΔPBS is 32 cm^2 ,

then the length of BR is _____ .



A. 2 cm

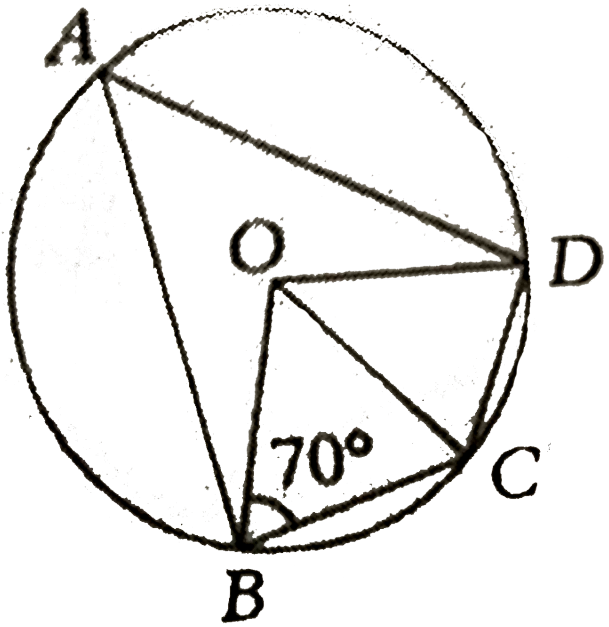
B. 4 cm

C. 6 cm

D. 8 cm

Answer: a

Watch Video Solution



11.

In the above figure (not to scale), O is the centre of the circle. $\overline{BC}$ and $\overline{CD}$ are equal chords. If $\angle OBC = 70^\circ$, then find $\angle BAD$.

A. 40°

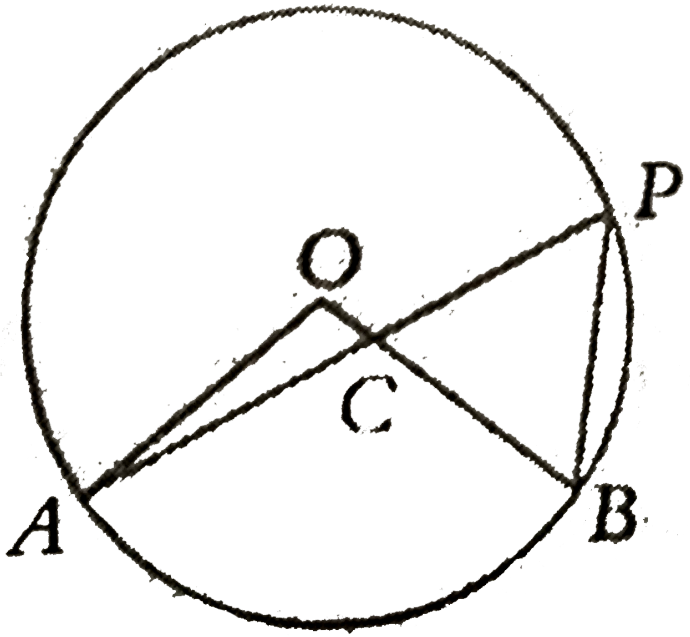
B. 60°

C. 55°

D. 45°

Answer: a

Watch Video Solution



12.

In the above figure (not to scale), O is the centre of the circle. $\overline{AP}$ and $\overline{BP}$ are two chords. C is the point of intersection of $\overline{AP}$ and $\overline{OB}$. If $\angle OAC = 30^\circ$ and $\angle PBC = 80^\circ$, then $\angle AOB =$

A. 110°

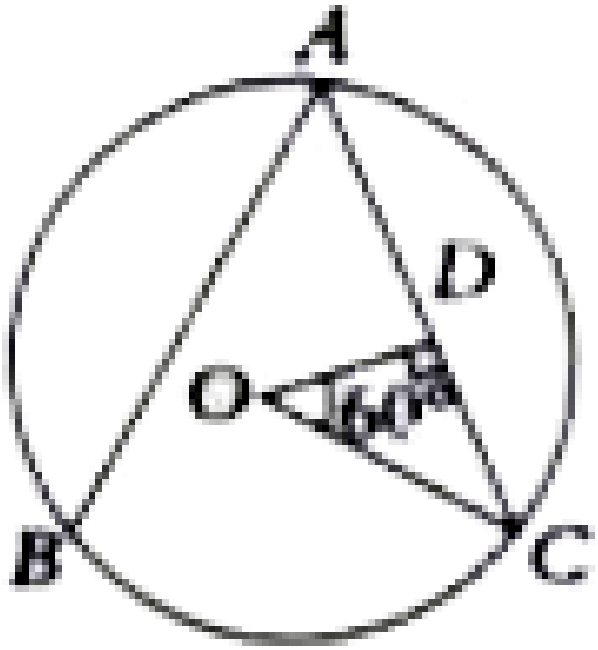
B. 100°

C. 130°

D. 120°

Answer: B

Watch Video Solution



13.

In the above figure , $\overline{AB}$ and $\overline{AC}$ are equal chords and $\overline{OD}$ is

perpendicular to $\overline{AC}$. If $\angle COD = 60^\circ$, then the angle between the chords is _____ .

A. 30°

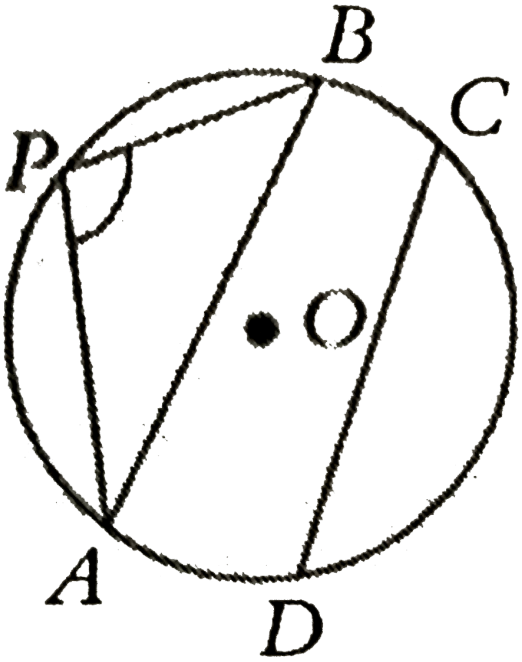
B. 60°

C. 90°

D. Cannot be determined

Answer: B

Watch Video Solution



14.

In the above figure, O is the centre of the circle and $AB = CD$. If $\angle APB = 110^\circ$, then find the angle made by the chord CD at the centre.

A. 220°

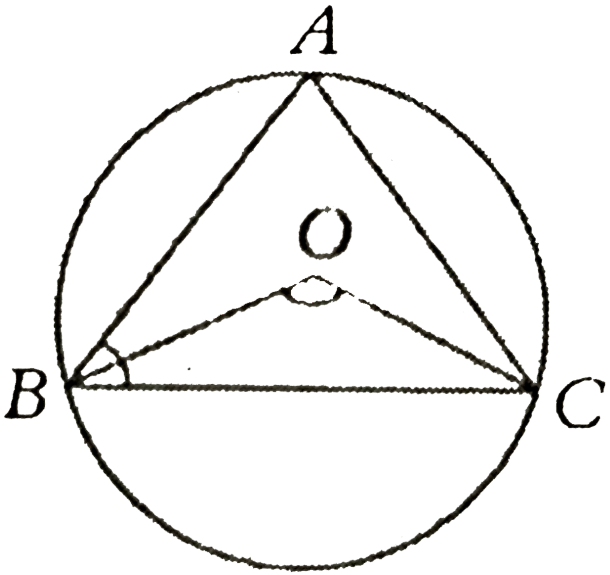
B. 110°

C. 120°

D. 140°

Answer: d

Watch Video Solution



15.

In the above diagram (not to scale), $AB = AC =$. O is the centre of the circle. If $\angle ABC = 80^\circ$, then $\angle BOC =$

A. 20°

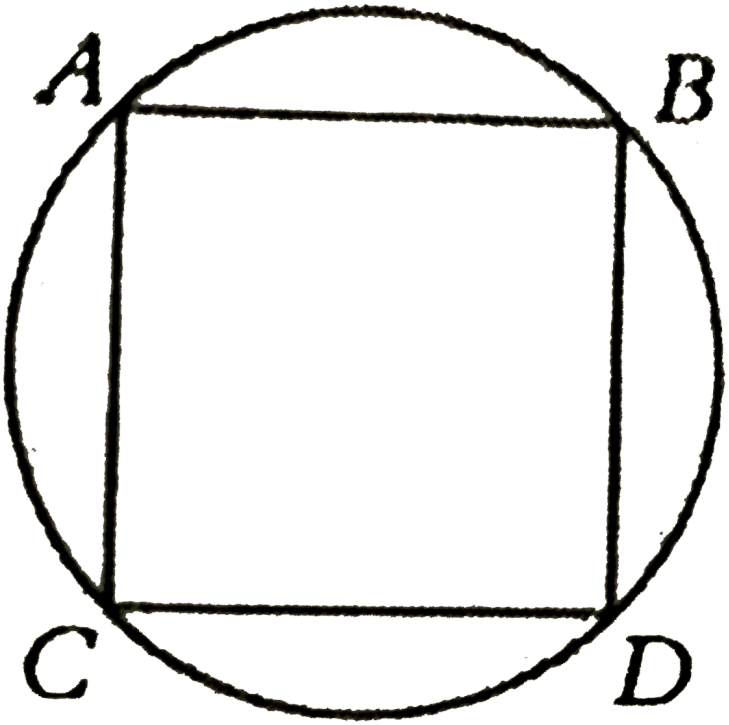
B. 40°

C. 60°

D. 80°

Answer: b

Watch Video Solution



16.

In the figure above (not to scale), $AB = CD$ and $\angle A = 100^\circ$. $\angle C =$

A. 100°

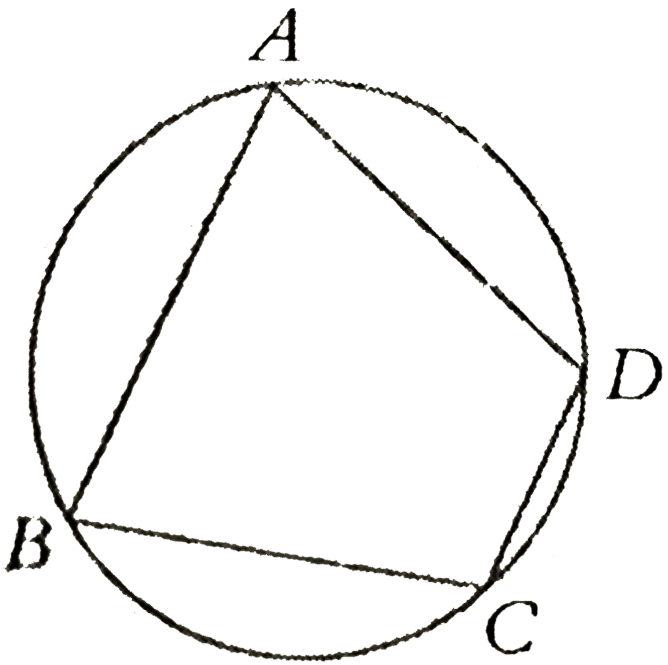
B. 120°

C. 80°

D. 40°

Answer: a

Watch Video Solution



17.

In the above figure, ABCD is a cyclic quadrilateral and $\angle BCD = 2\angle BAD$.

Find the angle made by the diagonal BD at the centre of the circle.

A. 60°

B. 80°

C. 100°

D. 120°

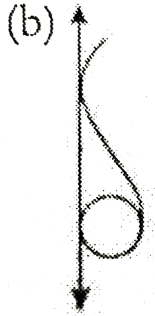
Answer: D

Watch Video Solution

18. In the below figure, one part of the line of symmetrcy is given. Recongnise the second part.

A.

B.

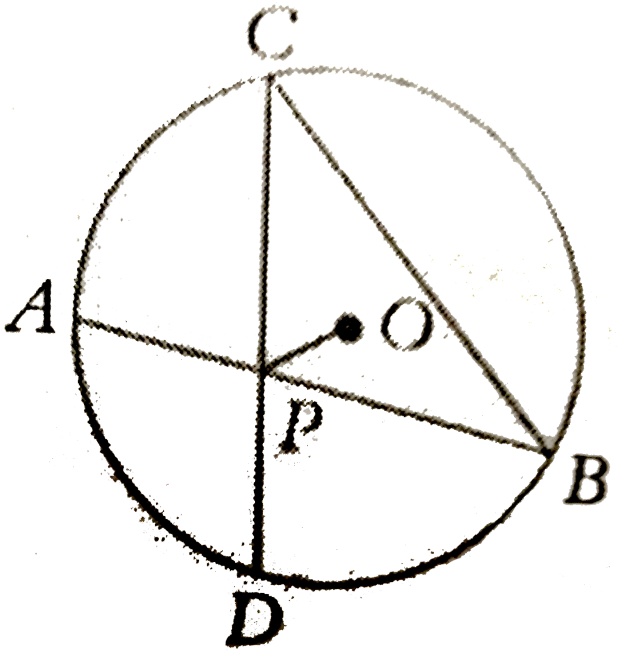


C.

D.

Answer: b

Watch Video Solution



19. In the above figure , AB and CD are equal chords and O is the centre of the circle. If $\angle OPB = 50^\circ$, then $\angle PBD =$ _____

A. 30°

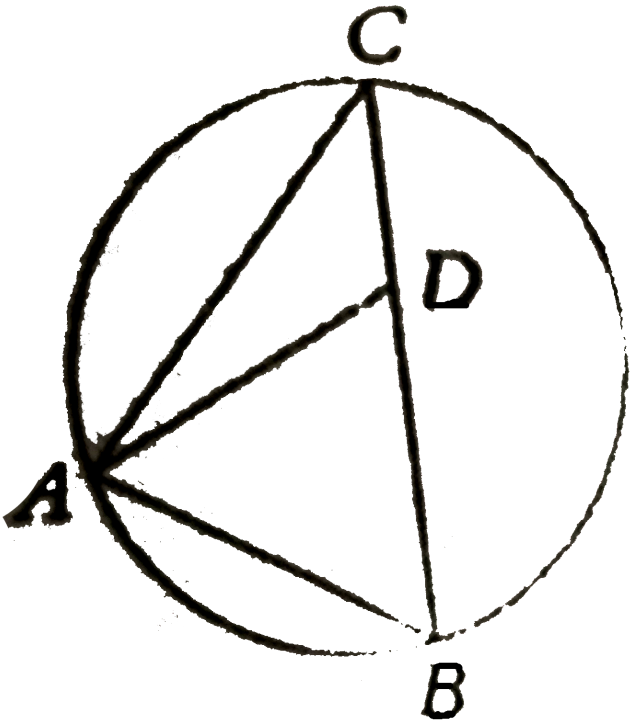
B. 40°

C. 50°

D. 60°

Answer: b

View Text Solution



20. In the given figure, $\angle DBA = 2\angle DAB = 4\angle CAD$.

If $\angle ADC = 120^\circ$, then the angle made by AB at the centre of the circle is

A. 20°

B. 40°

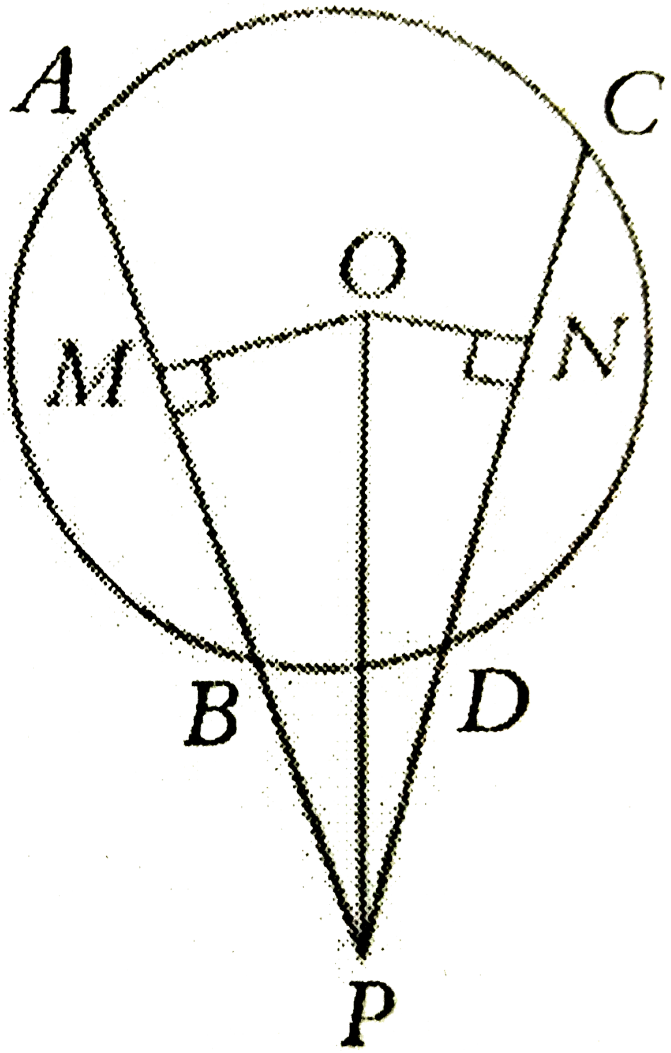
C. 60°

D. 80°

Answer: d

Watch Video Solution

21. In the given figure (not to scale), O is the centre of the circle. A,B,C and D are concyclic and $AB = CD$. If $\angle MON = 120^\circ$, then find $\angle OPN$.



A. 20°

B. 30°

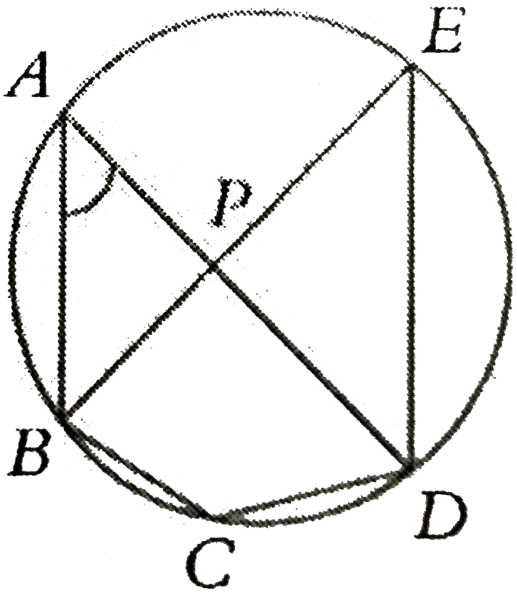
C. 40°

D. 60°

Answer: b

Watch Video Solution

22. In the following figure (not to scale), $\angle ADC = 60^\circ$, $\angle BAD = 80^\circ$ and $\angle EBC = 2\angle PDE$. Find $\angle APE$.



A. 60°

B. 80°

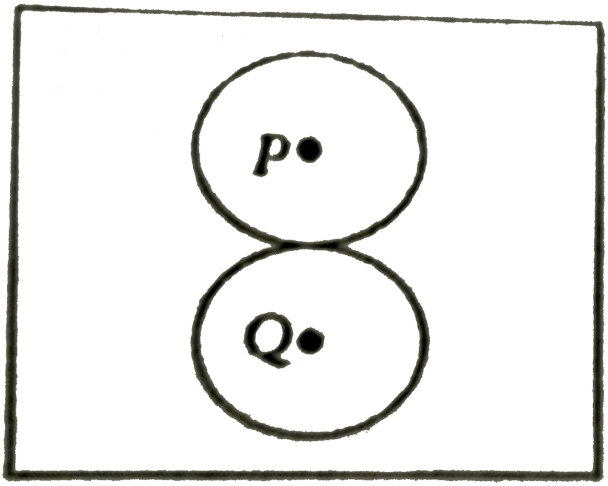
C. 120°

D. 140°

Answer: c

Watch Video Solution

23. How many lines of symmetry does the above figure have ?



A. 2

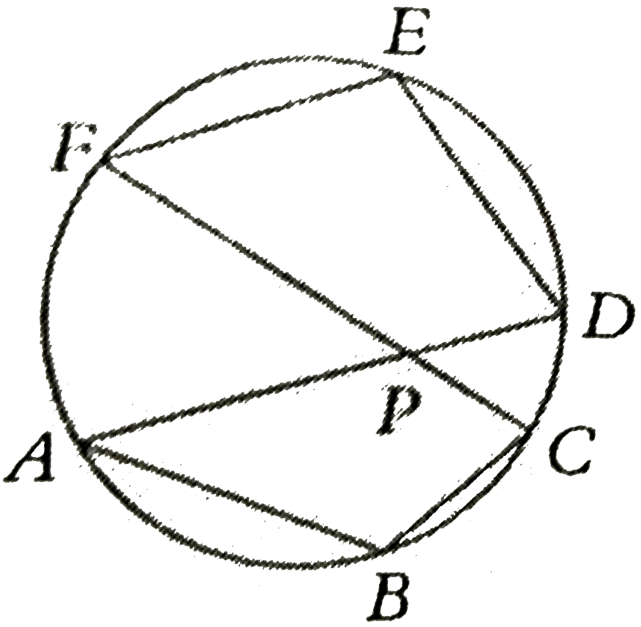
B. 3

C. 1

D. 0

Answer: a

Watch Video Solution



24. In the above figure (not to scale) $\overline{AB}$, $\overline{BC}$, $\overline{CF}$, $\overline{DE}$ and $\overline{FE}$ are chords of the

circle. If $\angle ABC = 100^\circ$ and $\angle FED = 110^\circ$, then $\angle FPA =$

A. 20°

B. 30°

C. 40°

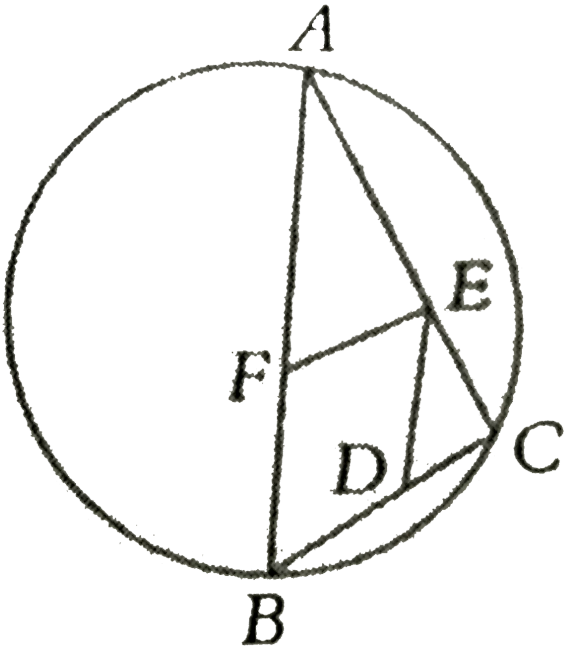
D. 70°

Answer: b

Watch Video Solution

25. In the figure given below, $\overline{ED} \,||\, \overline{AB}$ and $\overline{EF} \,||\, \overline{BC}$. If $\angle FED = 40^\circ$ and $\angle DEC = 20^\circ$, then the angle made by $\overline{BC}$ at the

centre is



A. 20°

B. 40°

C. 60°

D. 80°

Answer: b

Watch Video Solution

26. The supplement of an angle and the complement of another have a sum equal to half of a complete angle. If the greater angle is 10° more than the smaller , find the smaller angle.

A. 40°

B. 35°

C. 45°

D. 30°

Answer: a

Watch Video Solution

27. ABCD is a trapezium in which $AB \| CD, AB = 20cm, BC = 10$ cm, $CD = 10$ cm and $AD = 10$ cm . Find $\angle ADC$

A. 80°

B. 100°

C. 120°

D. 140°

Answer: c

Watch Video Solution

28. P is an interior point of quadrilateral ABCD and $AB = 3.5$cm, $BC = 4cm, CD = 4.8cm$ and $AD = 3.7$ cm . Then which of the following can be the possible value of $(AP + BP + CP + DP)$?

A. 7.9 cm

B. 8 cm

C. 8.1 cm

D. 6.4 cm

Answer: C

Watch Video Solution

29. The angles of a triangle are in the ratio $2:3:4$. Find them

The following are the steps involved in solving the above problem.

Arrange them in sequential order from the first to the last.

(A) $2x + 3x + 4x = 180^\circ$

$\Rightarrow 9x = 180^\circ \Rightarrow x = 20^\circ$

(B) Let the angles be A,B and C. Given $A:B:C = 2:3:4$

$\Rightarrow A = 2x, B = 3x = C = 4x$

(C) We know that the sumf of the angles of a triangle is $180^\circ, ie.,A + B + C = 180^\circ$

(D) The angles are $: A = 2(20^\circ) = 40^\circ, B = 3(20^\circ) = 60^\circ$ and $C = 4(20^\circ) = 80^\circ$.

A. BCAD

B. CBDA

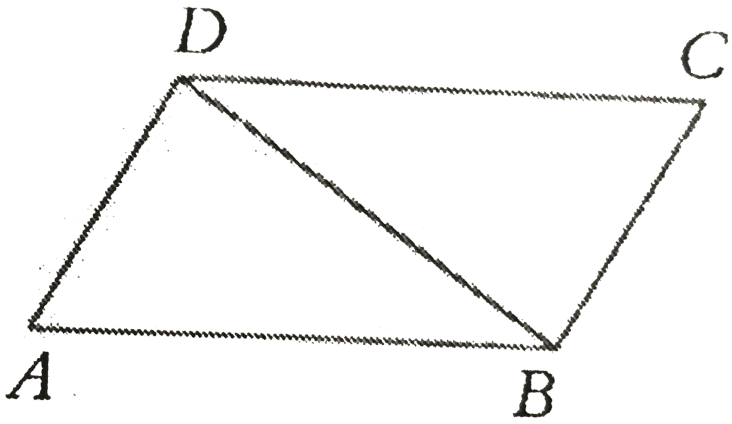
C. BACD

D. BDCA

Answer: a

Watch Video Solution

30. Prove that each of the following diagonals of a parallelogram divides it into two congurent triangles. The following lowing are the steps involved in proving the above results. Arrange them in sequential order.



(A) By SSS conguruence property , $\Delta DAB \cong \Delta BCD$.

(B) Let ABCD be a parallelogram and join BD.

(C) $AB = CD$, $AD = BC$(opposite sides of parallelogram) and $BD = BD$ (common side).

(D) Similarly , AC divides the parallelogram into two congruent triangles.

A. ABCD

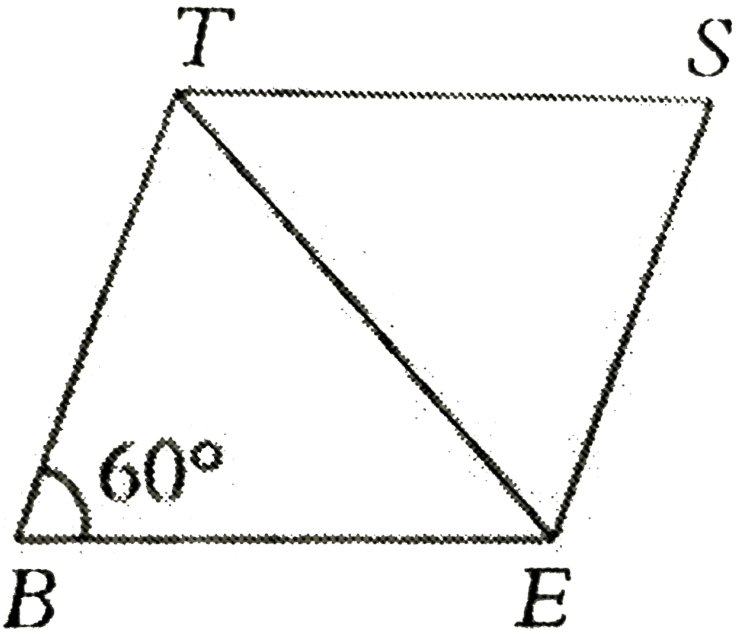
B. BCAD

C. BACD

D. CBAD

Answer: B

Watch Video Solution



31.

In a rhombus BEST,if $\angle B = 60^\circ$ and $BT = 6cm$, then find the length of

the diagonal TE.

The following are the steps involved in solving the above problem. Arrange them in sequential order.

(A) $\Rightarrow \Delta$ BTE is an equilateral triangle.

(B) Join T and E

(C) In $\Delta BET, BT = BE \Rightarrow \angle BTE = \angle BET = \frac{180^\circ - 60^\circ}{2} = 60^\circ (\because \angle B =$

.

(D) $TE = 6$cm

A. BCAD

B. BCDA

C. BACD

D. BADC

Answer: A

Watch Video Solution

32. The following sentences are the steps involved in construction of the incircle for the triangle XYZ in which $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4$ cm.

Arrange them in sequential order from the first to the last.

(A) Mark the foot of the perpendicular from I onto YZ as D.

(B) Construct the triangle XYZ with $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4cm$.

(C) Draw a circle with I as the centre and ID as radius. This is the required incircle.

(D) Draw the bisectors of $\angle X, \angle Y$ and $\angle Z$ and mark their point of concurrence as I.

A. BDCA

B. DBAC

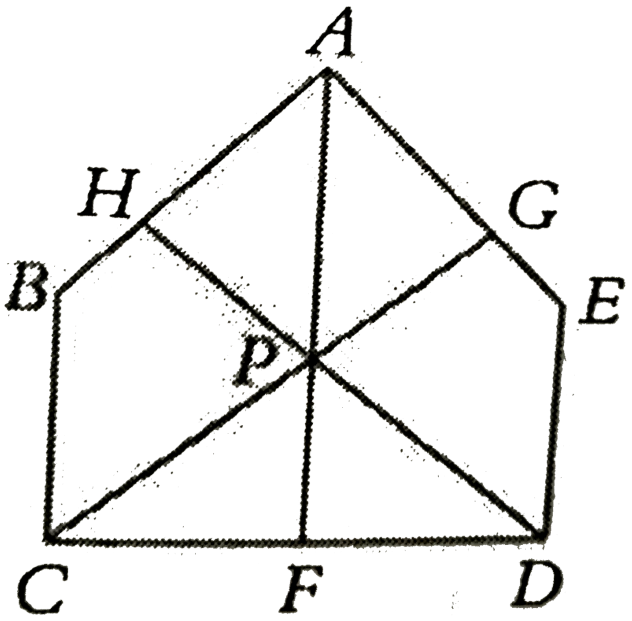
C. DBCA

D. BDAC

Answer: D

Watch Video Solution

Level 2



1.

In the above figure, $\overline{AF}||\overline{ED}, \overline{CG}||\overline{AB}$ and $\overline{AE}\ ||\ \overline{HD}$ If $\angle FPD = 40^\circ$, then $\angle AED =$

A. 40°

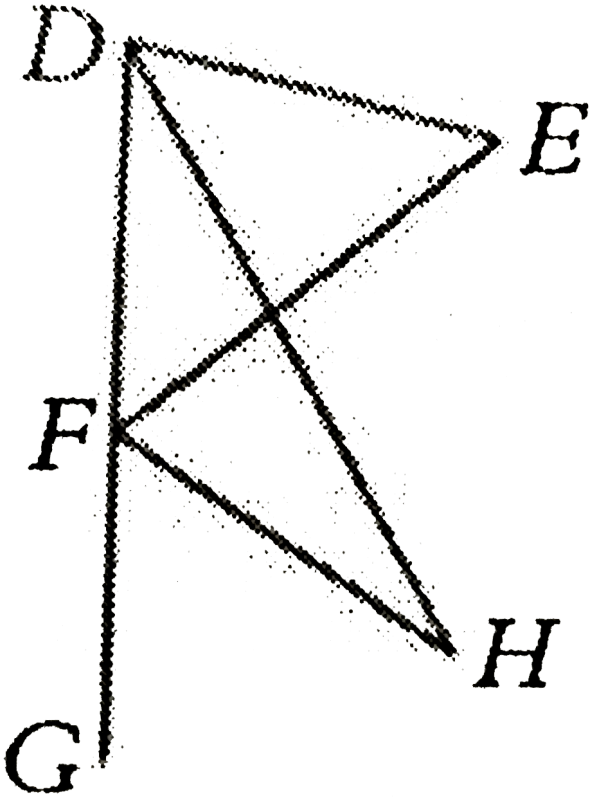
B. 80°

C. 120°

D. 140°

Answer: D

Watch Video Solution



2.

In the abve figure, DEF is a triangle whose side DF is produced to G. HF

and HD are the bisectors of $\angle EFG$ and $\angle EDG$ respectively . If $\angle DEF = 23\frac{1}{2}.^{\circ}$ and $\angle DHF$ (in degrees) $=$

A. $11\frac{1}{2}$

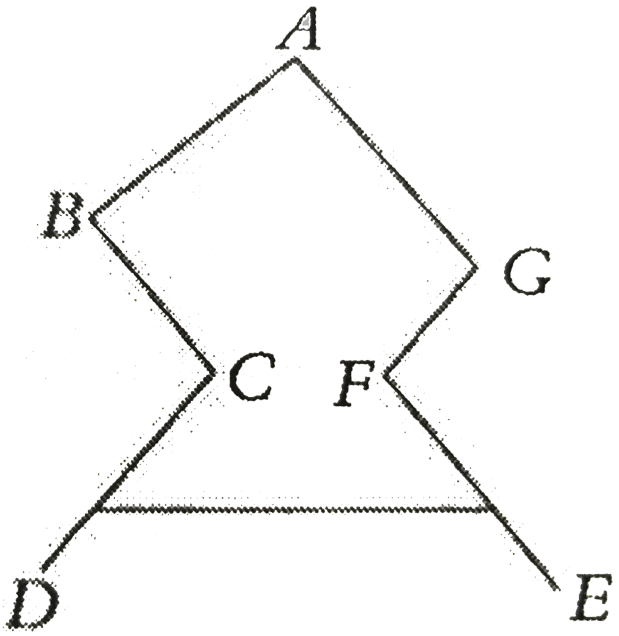
B. $11\frac{2}{5}$

C. $11\frac{3}{4}$

D. $11\frac{1}{3}$

Answer: c

View Text Solution



3.

In the above figure,$EF||AG$, $AB||CD$ | | FG and AG | | BC. If $\angle EFG70^\circ$, then $\angle BAG - \angle BCD =$

A. 70°

B. 40°

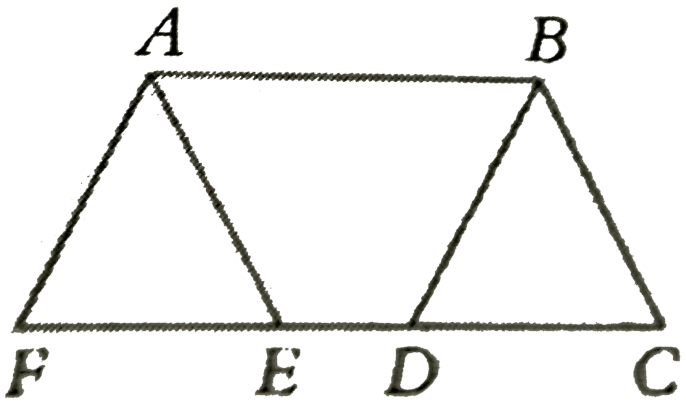
C. 80°

D. 110°

Answer: b

View Text Solution

4. In the figure below, $\overline{AB}||\overline{FC}, \overline{AE}||\overline{BC}$ and $\overline{AF} \mid \mid \overline{BD}$. If $\angle F = x^\circ, \angle C = \gamma^\circ, \angle EAB = k^\circ$ and $\angle ABD = p^\circ$, then which of the following options is correct ?



A. $x = k$ and $\gamma = p$

B. $x = p$ and $\gamma = k$

C. Both (a) and (b)

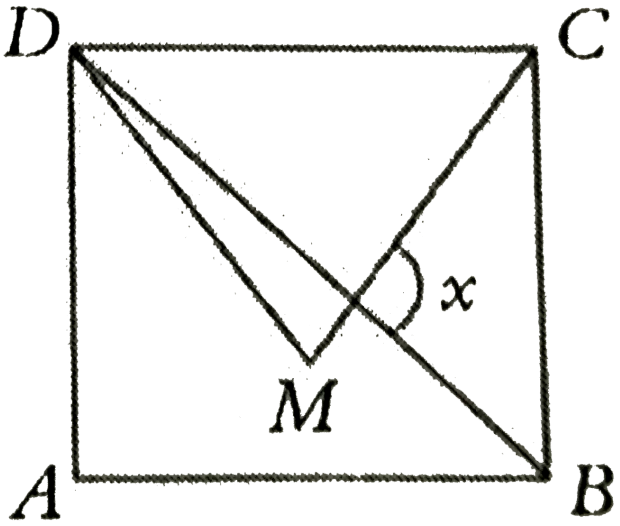
D. None of these

Answer: b

Watch Video Solution

5. In the figure below, ABCD is a square , MDC is an equilateral triangle.

Find the value of x.



A. 75°

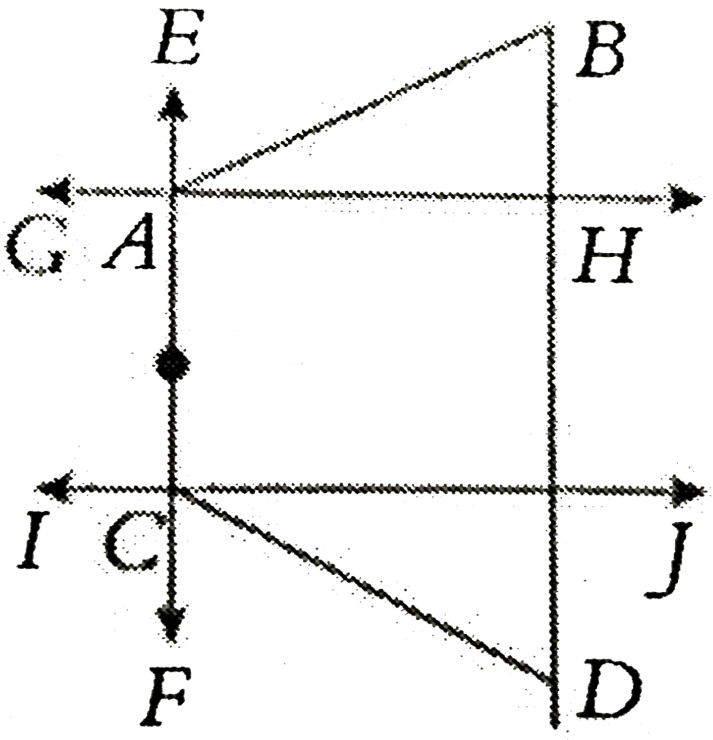
B. 90°

C. 105°

D. 60°

Answer: c

Watch Video Solution



6.

In the above figure, $GH \mid\mid IJ$ and $AC \mid\mid BD, AB$ and CD are bisectors of $\angle EAH$ and $\angle FCJ$ respectively. Find the $\angle ABD + \angle BDC$, if $\angle BAC = 3\angle BDC$.

A. 80°

B. 90°

C. 100°

D. 110°

Answer: b

Watch Video Solution

7. In a mombus PORS,the diagonals intersect at o Given that $\angle P = 120^\circ$ and $OP = 3cm$ .What is the side of the mombus?

A. 4 cm

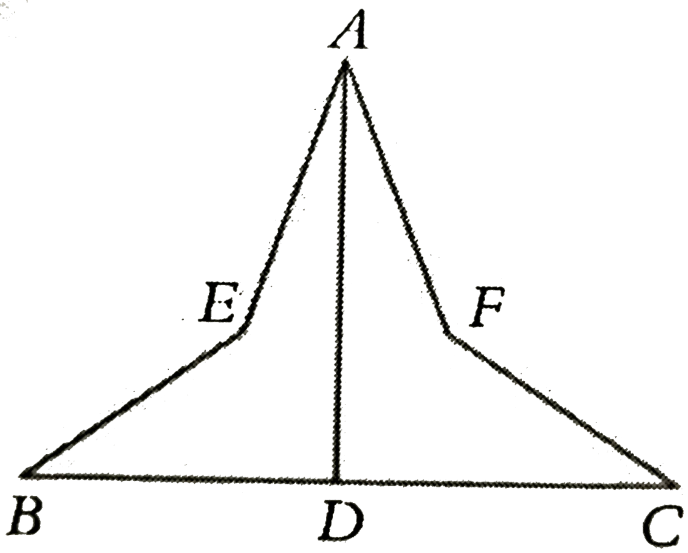
B. 6 cm

C. $3\sqrt{3}$ cm

D. Cannot be determined

Answer: b

Watch Video Solution



8.

In the figuare above (not to scale), $\overline{AD}$ is the angle bisector of $\angle EAF, \angle AFC = 110^\circ$ and $\angle DCF = 20^\circ$. If $\angle DAF = 30^\circ$ and $\angle EBD = 10^\circ$, then $\angle AEB =$

A. 110°

B. 120°

C. 150°

D. 160°

Answer: d

Watch Video Solution

9. In a rhombus ABCD, the diagonal intersect each other at O. If $\angle A = 60^\circ$ and $OA = 2$ cm, then the side of the rhombus is _____

A. 4cm

B. $4\sqrt{3}$ cm

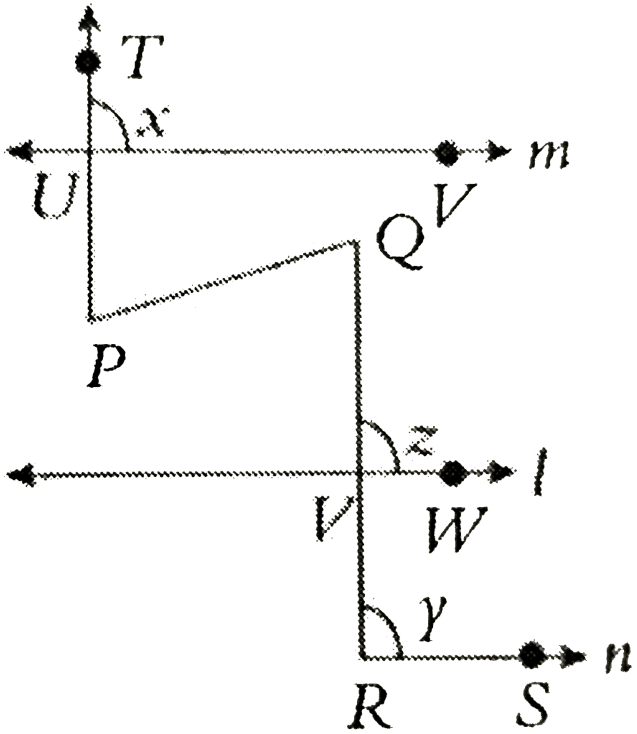
C. $2\sqrt{3}$ cm

D. None of these

Answer: d

Watch Video Solution

10. In the figure below, $m||l||n$ and $\overline{PT} \mid \mid \overline{QR}$. If $\angle TUV = x$, $\angle QRS = \gamma$ and $\angle QVW = z$, then which of the following is necessarily true ?



A. $x > \gamma = z$

B. $x < \gamma = z$

C. $x = \gamma = z$

D. Cannot be determined

Answer: c

Watch Video Solution

11. A circle is passing through three vertices of a rhombus of side 8 cm and its centre is the fourth gest diagonal of the rhombus (in cm).

A. $8\sqrt{3}$

B. $4\sqrt{3}$

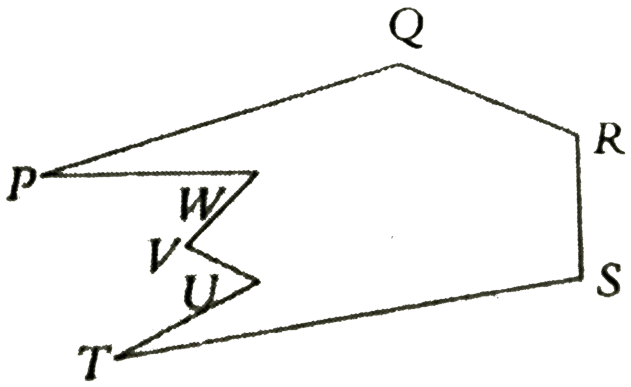
C. $6\sqrt{3}$

D. $2\sqrt{3}$

Answer: a

View Text Solution

12. Find the sum of the interior angles of the polygon gives below.



A. 1080°

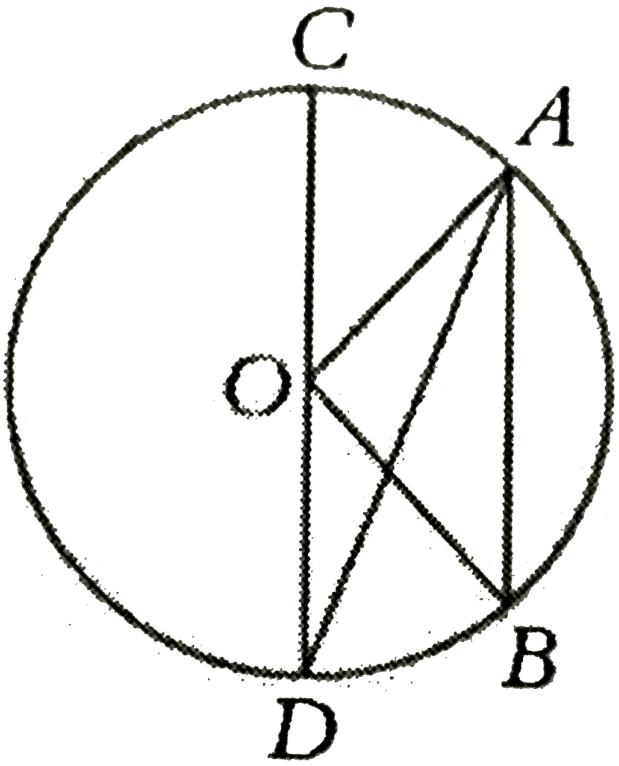
B. 1440°

C. 1800°

D. 900°

Answer: a

Watch Video Solution



13.

In the above figure (not to scale) , O is the centre of the circle and $\overline{CD} \mid\mid \overline{AB}$. If $\angle DAO = 20^\circ$, then $\angle AOB =$

A. 110°

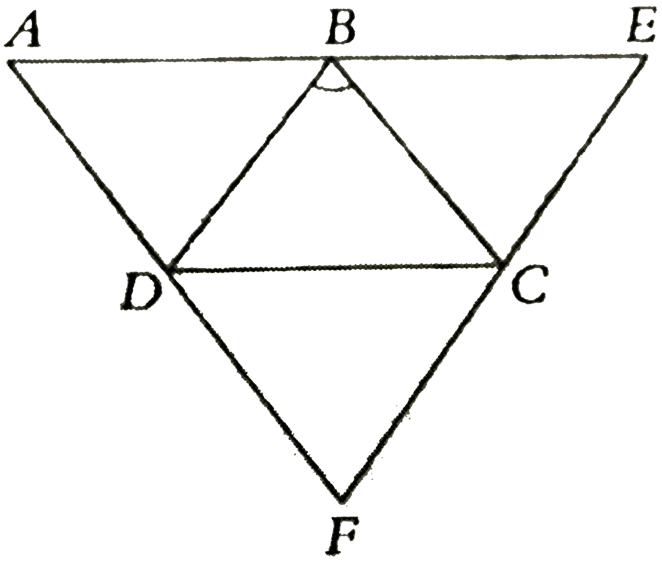
B. 130°

C. 100°

D. 120°

Answer: c

View Text Solution



14.

In the given figure, ABCD and BECD are parallelograms, BCFD is a rhombus. If $\angle DBC = 80^\circ$, then which of the following are the angles of the triangle AEF ?

A. $60^\circ, 70^\circ, 50^\circ$

B. $60^\circ, 60^\circ, 60^\circ$

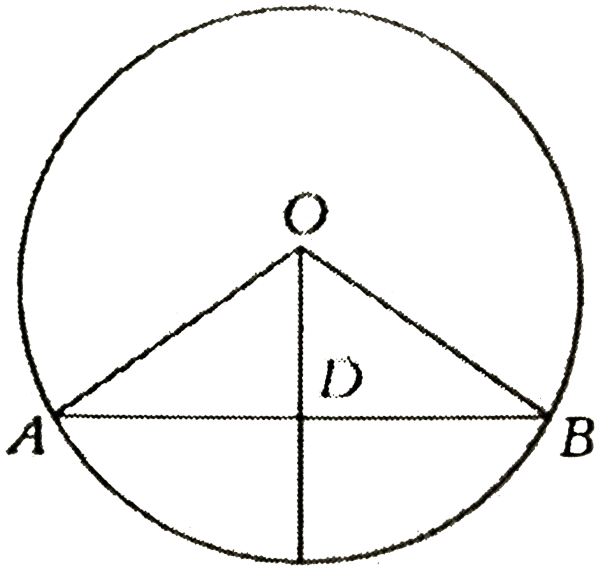
C. $50^\circ, 40^\circ, 90^\circ$

D. $50^\circ, 50^\circ, 80^\circ$

Answer: d

Watch Video Solution

15. The perpenidicular drawn from the centre of a circle bisects any chord of the circle. The following are the steps involved in proving the above result. Arrange them in sequential order.



(A) Let $\overline{OD} \perp \overline{AB}$.

(B) Let AB be the chord of the circle with centre O.

(C) $\Delta ODA \equiv \Delta ODB$ (By RHS congruence property).

(D) $OA = OB$ (radii), $OD = OD$ (common side) and $\angle ODA = \angle ODB = 90^\circ$

(E) $AD = DB$ (corresponding parts in congurents triangles).

A. BADCE

B. BCDAE

C. DBACDE

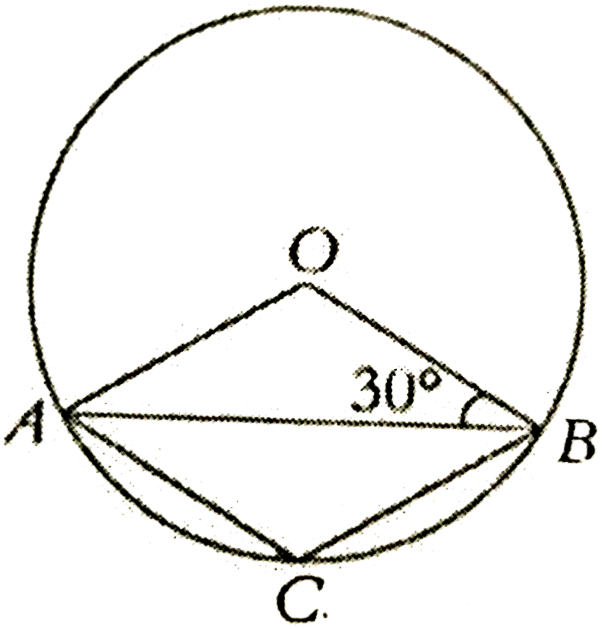
D. BDEAC

Answer: a

Watch Video Solution

16. In the adjacent figure (not to scale), O is the centre of the circle and $\angle OBA = 30^\circ$. Find $\angle ACB$.

The following sentences ae the steps involved in solving the above problem. Arrange them in sequential order from the first to the last.



(A) $\angle OAB = 30^\circ, \angle OBA = 30^\circ$

$\Rightarrow \angle AOB = 180^\circ - 30^\circ - 30^\circ = 120^\circ$

(B) We known that $\angle ACD = \dfrac{\text{Reflex } \angle AOB}{2} = \dfrac{240^\circ}{2} = 120^\circ$

(C) Reflex $\angle AOB = 240^\circ$

(D) $OA = OB$ (radii) $\Rightarrow \angle OBA = \angle OAB = 30^\circ$.

A. ABCD

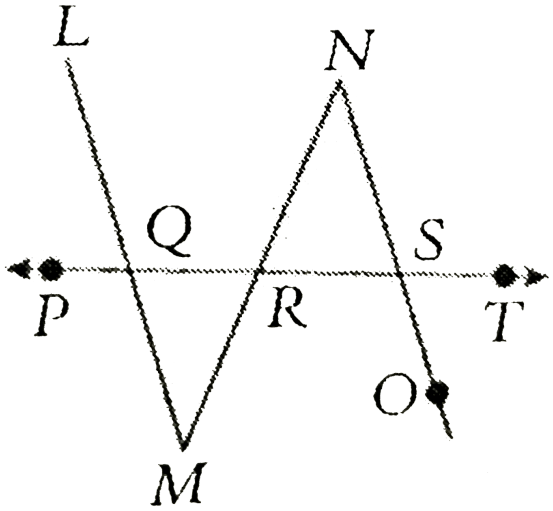
B. DCAB

C. DACB

D. DCA

Answer: C

Watch Video Solution



17.

In the given figure , $\overline{LM} \mid \mid \overline{NO}, \angle QMR = 50^\circ$ and $\angle RSO = 110^\circ$. Find $\angle MRQ$.

A. 60°

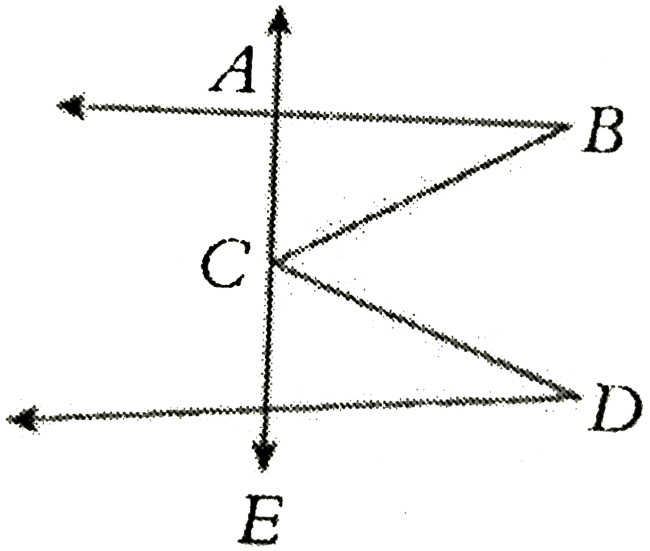
B. 70°

C. 80°

D. 50°

Answer: A

Watch Video Solution



18.

In the above figure, $\overline{AB} \mid\mid \overline{DE}$ and ACE is a straight line . I f $\angle ABC = 30^\circ$ and $\angle CDE = 20^\circ$, then find $\angle BCD$.

A. 40°

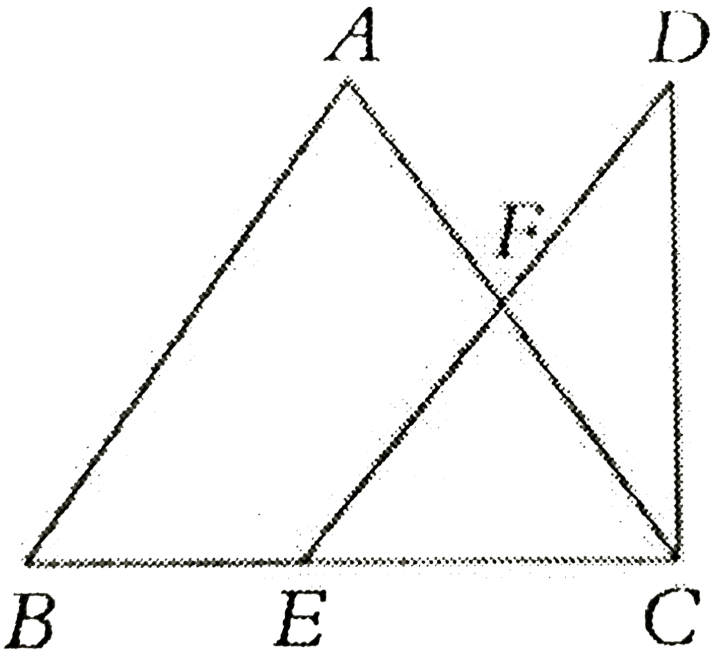
B. 50°

C. 60°

D. 70°

Answer: B

Watch Video Solution



19.

In the given figurs, $\angle BAC = 70^\circ, \angle BCD = 80^\circ, \angle EFC = 80^\circ$ and $\angle ABC = 60^\circ$. How many isoscles triangles are there in the given figure ?

A. 1

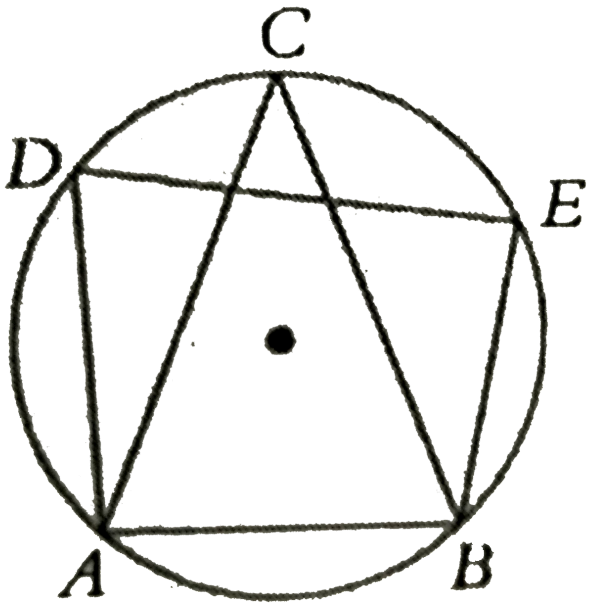
B. 2

C. 3

D. 4

Answer: b

Watch Video Solution



20.

In the figure, A,B,E,C and D are the points on the circle. If $AB = BE$ and $\angle ACB = 30^\circ$, then find $\angle ADE$.

A. 50°

B. 45°

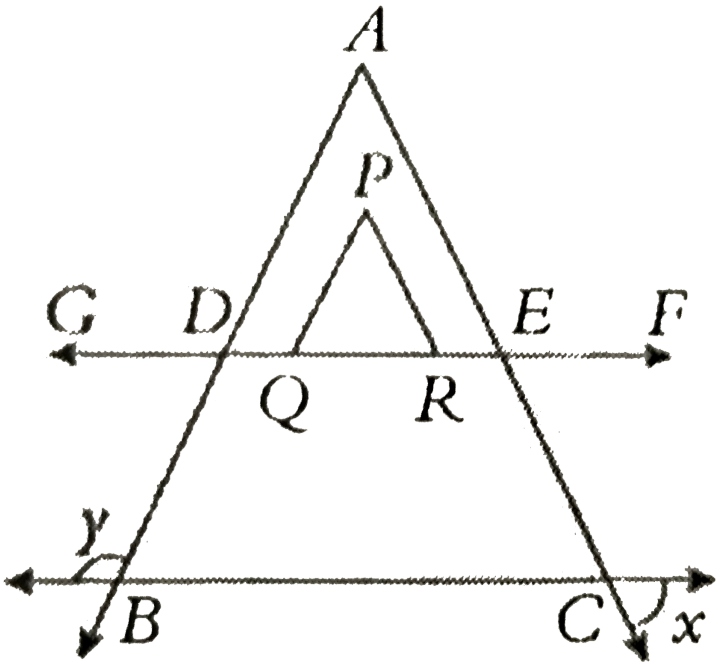
C. 60°

D. 80°

Answer: c

Watch Video Solution

Level 3



1.

In the above figure (not to scale), $\overline{GF}||\overline{BD}$, $\overline{B}||\overline{PQ}$ and $\overline{AC}\ |\ |\ \overline{PR}$ If $\angle x = 40^\circ$ and $\angle y = 110^\circ$, then find $\angle QPR$.

A. 70°

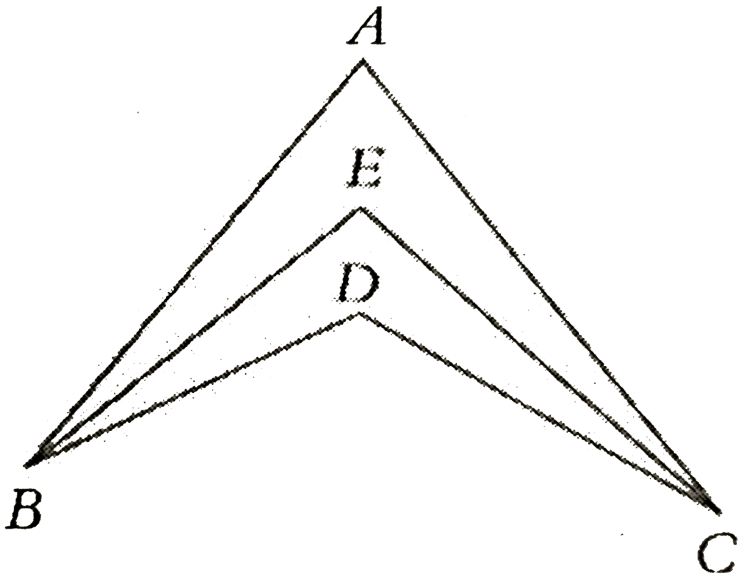
B. 80°

C. 60°

D. None of these

Answer: a

Watch Video Solution



2. In the figure above (not to scale), $\angle ABE = \angle ECD$ and $\angle EBD = \angle ACE$. If $\angle BAC = 80^\circ$ and $\angle BEC = 100^\circ$, then $\angle BDC =$ _____

A. 80°

B. 100°

C. 110°

D. 120°

Answer: d

View Text Solution

3. In $\Delta PQR, PD \perp QR$ and PO is the bisector of $\angle QPR$. If $\angle PQR = 65^\circ$ and $\angle PRQ = 23\frac{1}{2}.^\circ$ then $\angle DPO$ in degrees $=$

A. $20\frac{3}{4}$

B. $20\frac{1}{2}$

C. $20\frac{1}{5}$

D. $20\frac{1}{4}$

Answer: a

Watch Video Solution

4. In a parallelogram PQRS, the bisectors of $\angle P$ and $\angle Q$ meet on RS.If the perimeter PQRS is 13.5 cm, then find the measure of QR

A. 4.5 cm

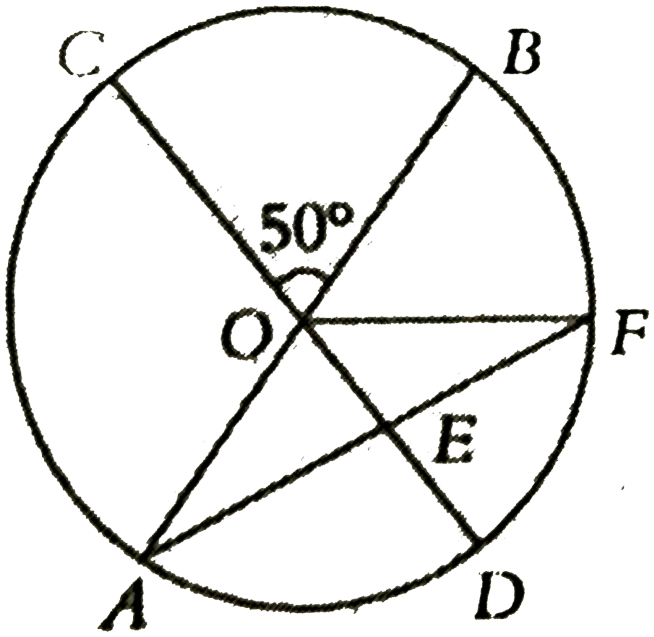
B. 2.25 cm

C. 3 cm

D. 3.75cm

Answer: b

Watch Video Solution



5.

In the above figure , O is the centre of the circle, AB and CD are diameters.

$\angle COB = 50^\circ = 50^\circ$. If E is the midpoint of AF, then find $\angle ADF$

A. 130°

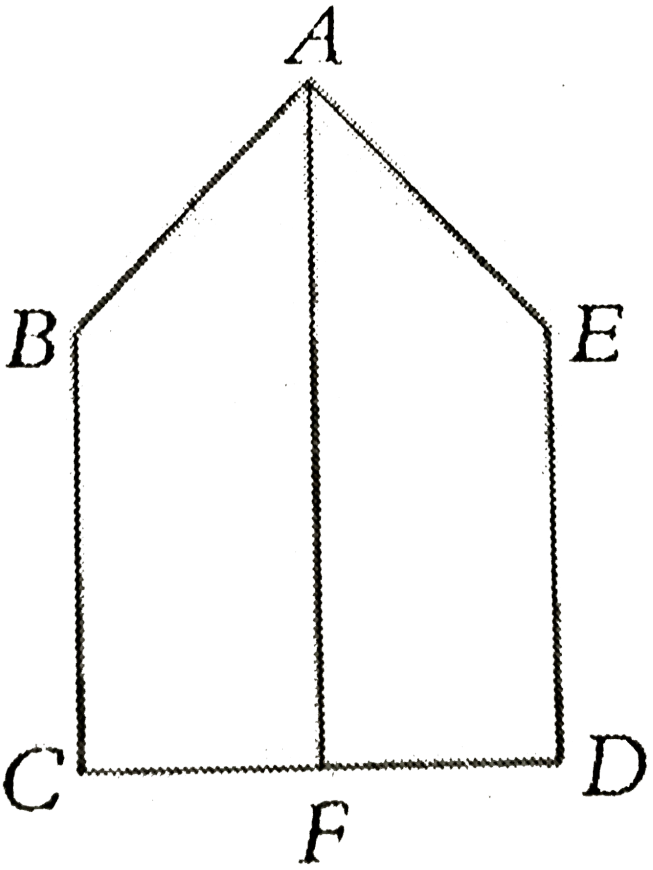
B. 100°

C. 110°

D. 120°

Answer: a

Watch Video Solution



6.

In the figure above (not to scale), ABCDE is symmetrical about AF. If $\angle C = 90^\circ$ and $\angle BAF = 45^\circ$, then find the $\angle E$.

A. 90°

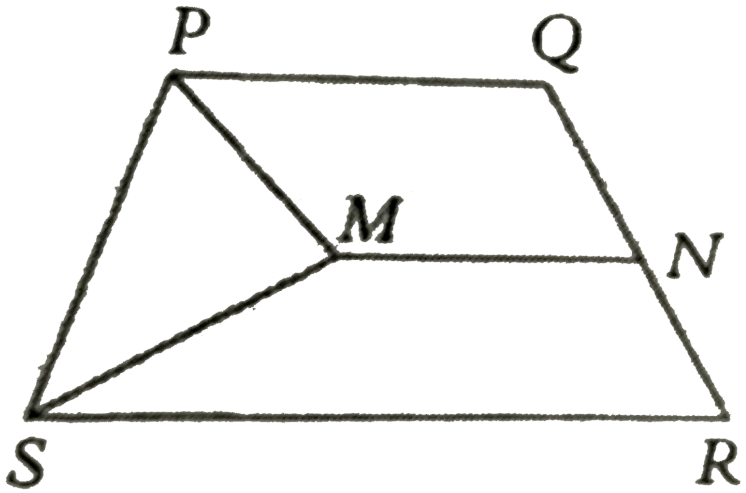
B. 105°

C. 135°

D. Cannot say

Answer: c

Watch Video Solution



7.

In the given figure, PQRS is an isosceles trapezium and $\overline{PQ}||\overline{SR}||\overline{MN}$ If $\angle SPM = 70^\circ$ and $\angle PQR = 110^\circ$, then find $\angle PMN$.

A. 140°

B. 150°

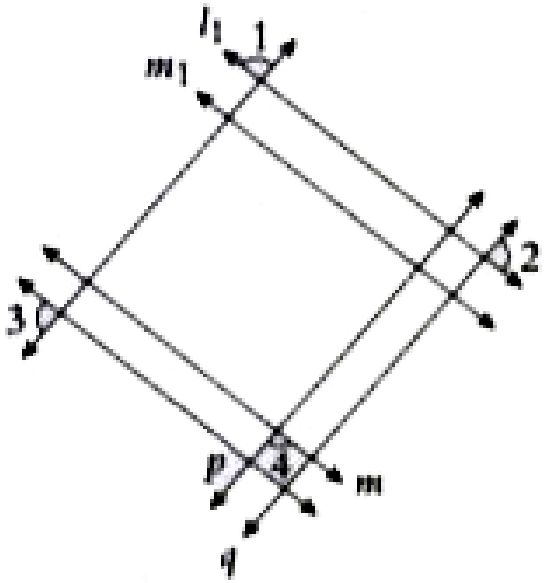
C. 120°

D. 100°

Answer: a

Watch Video Solution

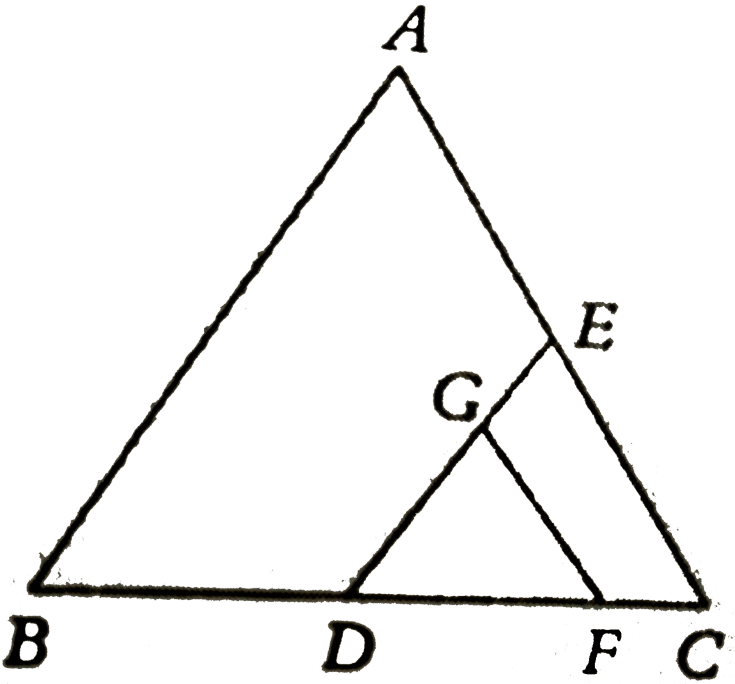
TEST YOUR CONCEPTS (VERY SHORT ANSWER TYPE QUESTIONS)



1.

In the above figure (not to scale) , $l||m, l_1||m_1,$ and $p \mid \mid q$ such that $\angle 1 = 90^\circ, \angle 2 = 130^\circ,$ and $\angle = 70^\circ$. Find $\angle 4$.

View Text Solution



2.

In the above figure (not to scale) , $AB \mid\mid DE$ and $EC \mid\mid GF$. If $\angle EGF = 100^\circ$ and $\angle ECF = 40^\circ$, find the following .

(i) $\angle ABC$ (ii) $\angle GFC$

(iii) $\angle GDF$

Watch Video Solution

3. Which of the letters of the English alphabet have only one line of symmetry ?

Watch Video Solution

4. The angle whose supplement is three times its complement is _____.

Watch Video Solution

5. In ΔABC, if $\angle A < \angle B < 45^\circ$, then ABC is a/an _____ triangle .

Watch Video Solution

6. In ΔABC, if $\angle A = \angle A = 80^\circ$ and $AB = AC$, then $\angle B =$ _____.

View Text Solution

7. In ΔABC, $\angle A = \angle C = 50^\circ$ .the longest side of ΔABC is _____ .

Watch Video Solution

8. If G is the centroid of ΔABC, then the area of ΔBGC is _____ times the area of quadrilateral ABCG.

Watch Video Solution

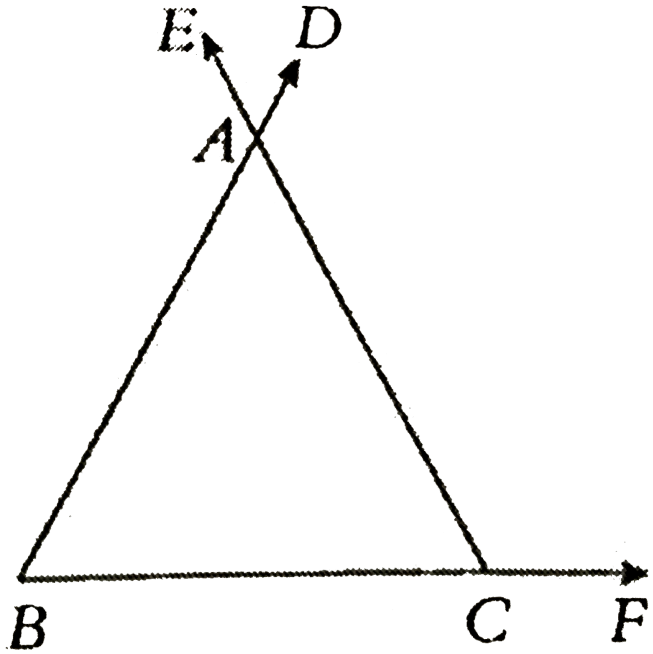
9. ABCD is a quadrilateral in which $\angle A = 60^\circ, \angle B = 70^\circ, \angle C = 110^\circ$ and $\angle D = 120^\circ$. The number of pairs of parallel lines is _____.

Watch Video Solution

10. Which of the following digits have two lines of symmetry ?

$0, 1, 2, 3, 4, 5, 6, 7, 8, 9$

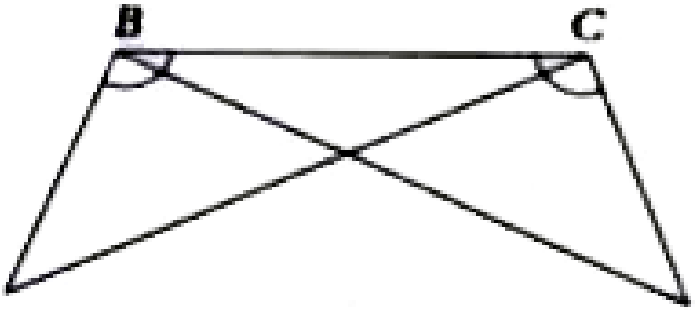
Watch Video Solution



11.

In the above figure (not to scale) the sides BA,BC and CA of ΔABC are produced to D,F, and E respectively such that $\angle ACF = 120^\circ$ and $\angle BAE = 150^\circ$. Then $\angle ABC =$ _ _ _ _.

Watch Video Solution

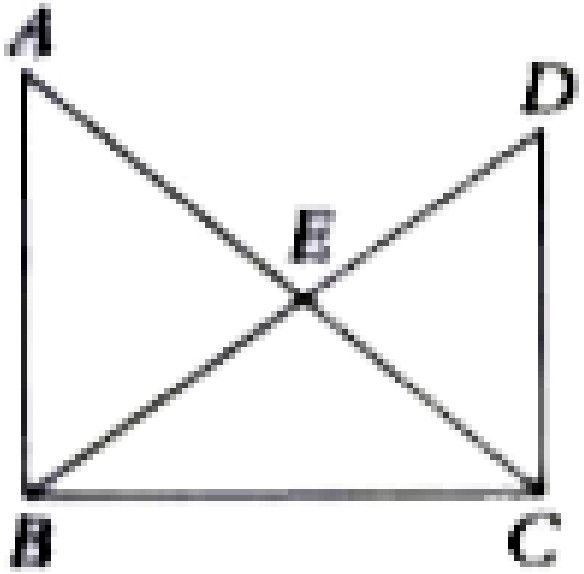
12. 

In the figure , if AB =CD and $\angle DCB = \angle ABC$, then the triangles ABC and DCB are congruent . True or false.

Watch Video Solution

13. If all the sides of a polygon ABCDE are equal, then $\angle A = \angle C$. (Yes / No / May or May not be)

Watch Video Solution



14.

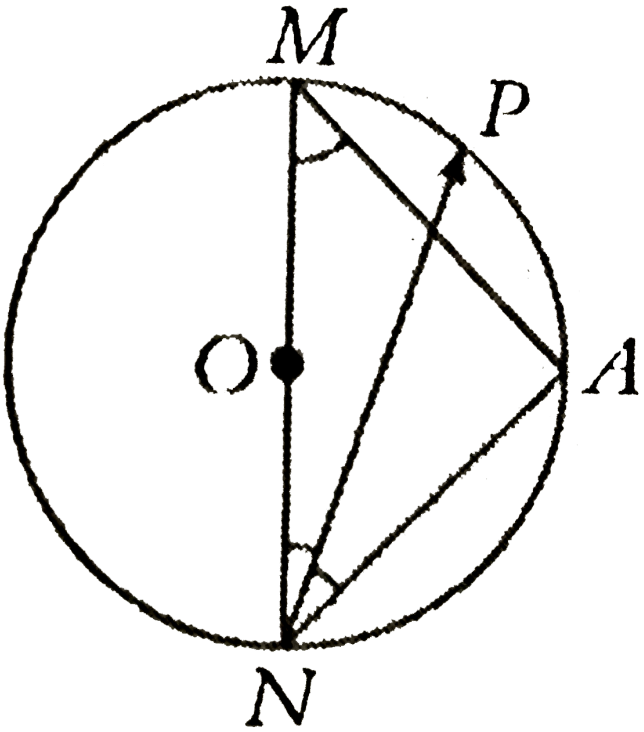
In the above figure , $\overline{AC}$ and $\overline{BD}$ intersect at E such that BE =EC , $\angle ABE = 70^\circ$ and $\angle DCE = 80^\circ$. If $\angle BAC = \frac{3}{2}\angle CDE$, then find $\angle BEC$.

Watch Video Solution

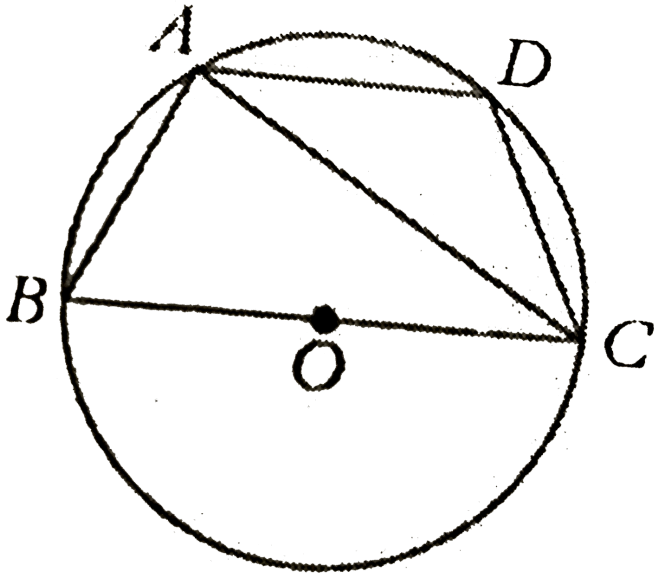
15. The chords which are equidistant from the centre of a circle are equal only if they are parallel to each other. [True / False]

Watch Video Solution

16. In the figure below, $\overline{MN}$ is the diameter of the circle with centre O. $\overline{NP}$ bisects the $\angle ANM$. If $\angle NMA = 33^\circ$, then find $\angle ANP$.



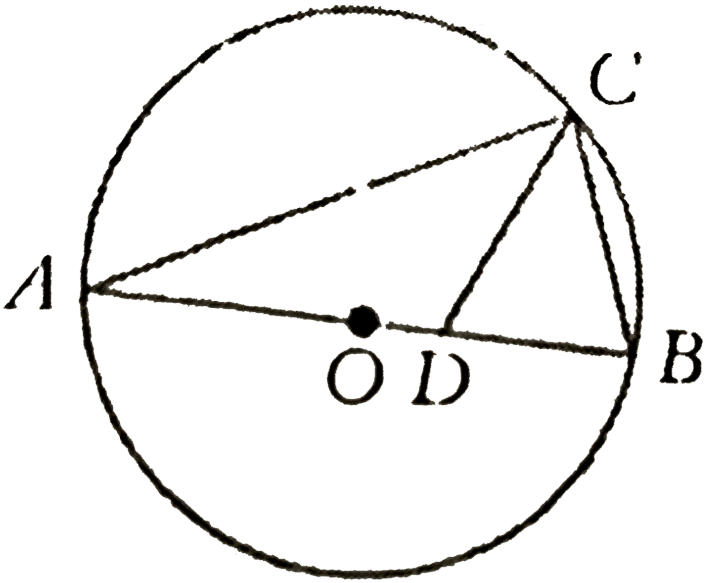
Watch Video Solution



17.

In the above figure, O is the centre of the circle AB,AD and CD are the chords . If $\angle ADC = 130^\circ$ then fid $\angle ACB$.

Watch Video Solution



18.

In the given figure, AB is the diameter and $\angle ADC = 2\angle BDC$. If $\angle BCD = 70^\circ$, then find the angle made by AC at the centre of the circle.

Watch Video Solution

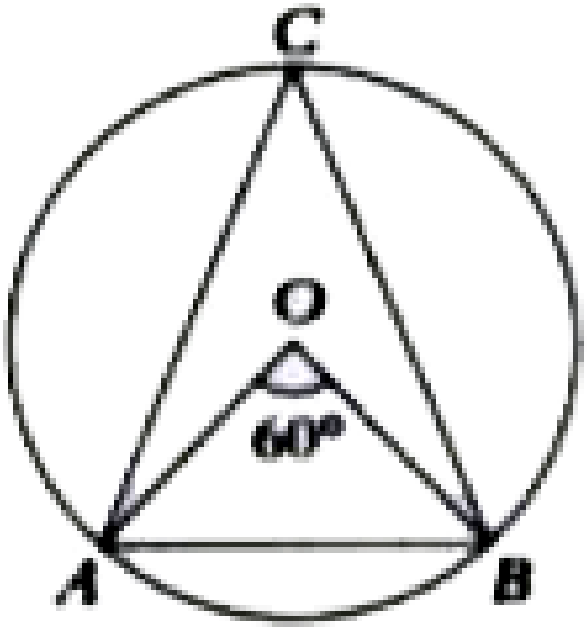
19. The distances of two chords AB and CD from the centre of a circle are 6 cm and 8 cm respectively. Then, which chord is longer?

Watch Video Solution

20. If three equal chords meet at three distinct points on the circle , then the angle between any two chords is _____.

Watch Video Solution

21. In the following figure , if $\angle AOB = 60^\circ$, then $\angle ACB = 30^\circ$.



Watch Video Solution

22. If the diagonals of a cyclic quadrilateral intersect at the centre of a circle , then the quadrilateral is _____.

Watch Video Solution

23. If two equal chords bisect each other, then the point of intersection of the chords coincides with their centre. [True / False]

Watch Video Solution

24. PS is the chord of the circle with centre O. A perpendicular is drawn from centre O of the circle to chord PS at M. If $\overline{PS} = 30cm$ and $\overline{OM} = 8cm$, then find the radius of the circle.

Watch Video Solution

25. The radius of a circle is 10cm. The length of a chord is 12 cm. Then the distance of the chord from the centre is _____.

Watch Video Solution

26. In a circle , chord AB subtends an angle of 60° at the centre and chord CD subtends 120°, at it. Then which chord is longer ?

Watch Video Solution

27. A line which bisects the diameter of a circle is perpendicular to the diameter. [True / False]

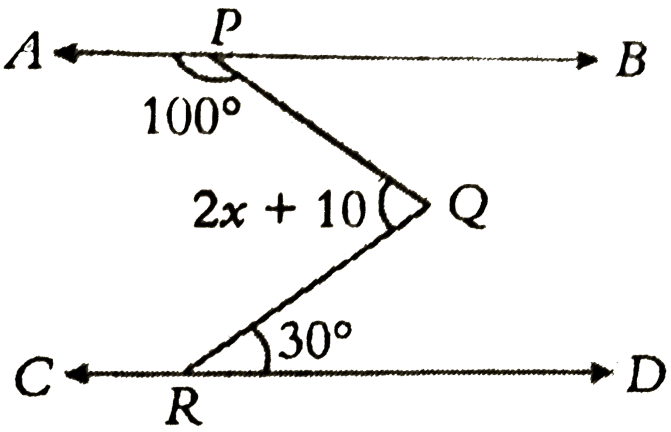
Watch Video Solution

28. AB and CD are equal and parallel chords of a circle with centre O. Then AC passes through the centre O. [Agree / Disagree]

Watch Video Solution

TEST YOUR CONCEPTS (SHORT ANSWER TYPE QUESTIONS)

1.

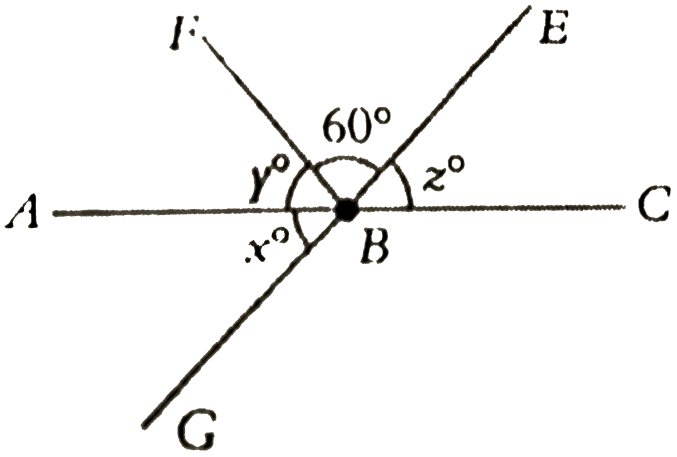


In the above figure, AB is parallel to CD. P and R are the points on AB and CD respectively. Q is in between AB and CD. Find the value of x in degrees

Watch Video Solution

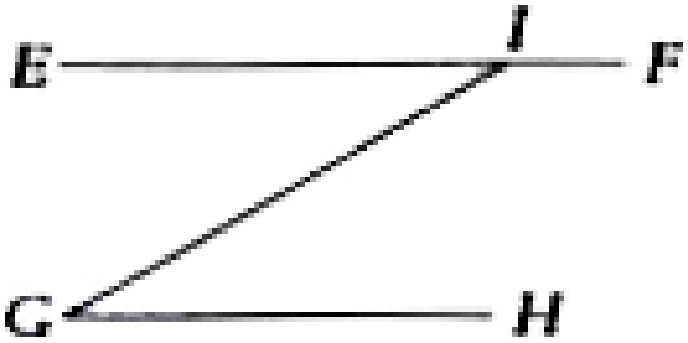
2. In the figure below (not to scale), ABC is a straight line. If $\angle FBE = 60^\circ, \angle CBG = 120^\circ, \angle ABG = x^\circ, \angle ABF = gamm^\circ$ and

$\angle CBE = z^\circ = 2\gamma^\circ$, then $(x^\circ + z^\circ) : \gamma^\circ$ is



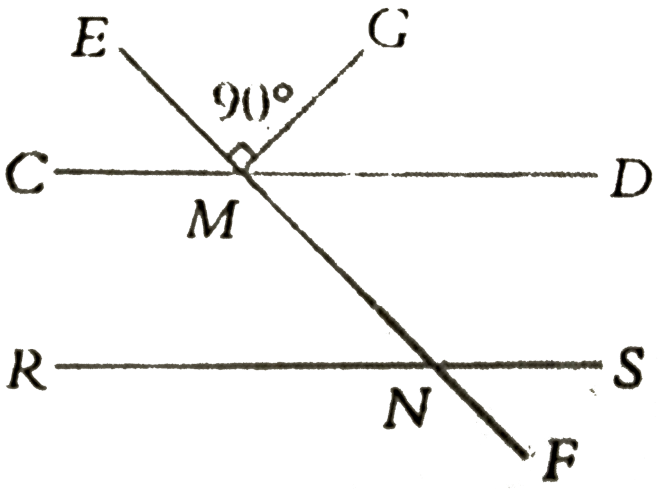
Watch Video Solution

3. In the figure below, $\overline{EF} \parallel \overline{GH}$. If $\overline{GI}$ is the transversal, $\angle IGH = y^\circ$, and $\angle FIG = 3y^\circ$, then the ratio of the supplement of y to its complement is _____.

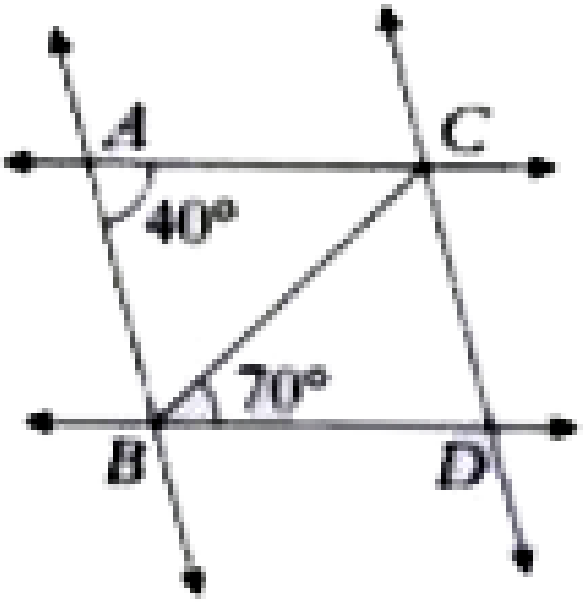


Watch Video Solution

4. In the figure below (not to scale) $\overline{CD} \mid \mid \overline{RS} \angle EMG = 90^\circ, \angle GMD = \gamma^\circ, \angle CME = x^\circ$ and $\gamma^\circ = \frac{x^\circ}{2}. \angle FNS : \angle FNR$is



Watch Video Solution

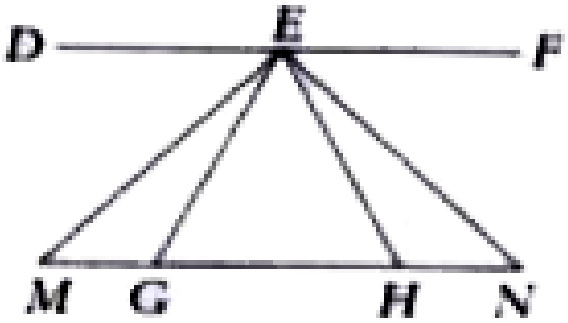


5.

In the above figure (not to scale), $\overline{AB}||\overline{CD}$ and $\overline{AC}||\overline{BD}$. If $\angle BAC = 40^\circ$ and $\angle CBD = 70^\circ$, then $\angle BCD =$ _____.

Watch Video Solution

6.

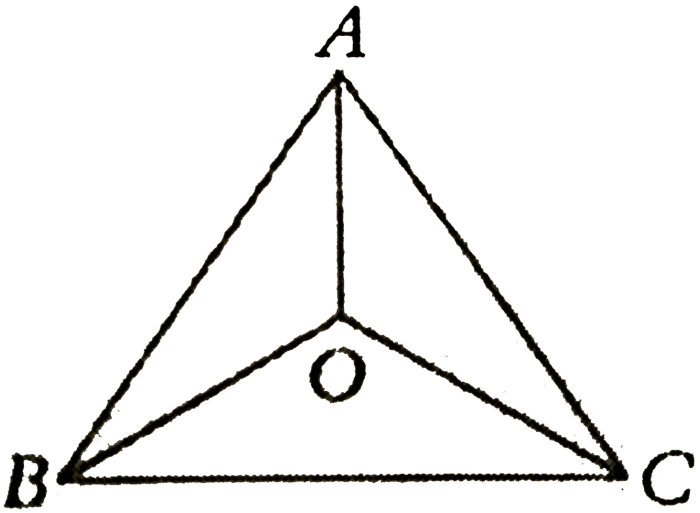


In the above figure , DF is parallel to MN . EGH is an isosceles triangle , where $EG = EH$ and $\angle GEH = 50^\circ$. If EM and EN are the bisectors of the $\angle DEG$ and $\angle FEH$, then

(i) Show that $\angle DEM = \angle FEN$.

(ii) Show that $\angle GEM = \angle HEN$.

Watch Video Solution



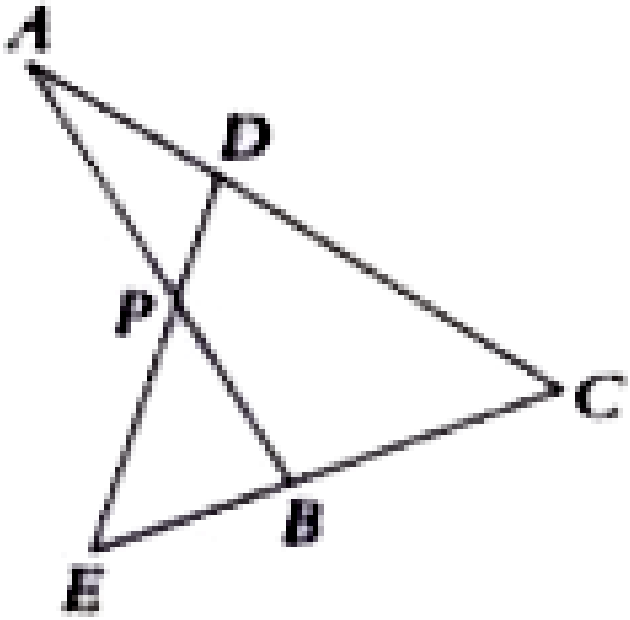
7.

In the above ΔABC (not to scale), OA is the angle bisector of $\angle BAC$.

If $OB = OC, \angle OAC = 40^\circ$ and $\angle ABO = 20^\circ$. If $\angle OCB = \frac{1}{2}\angle ACO$,

then find $\angle BOC$.

Watch Video Solution

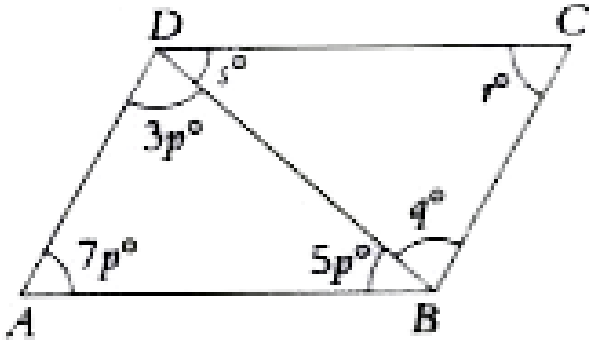


8.

In the given figure , AB and DE are straight lines . $\angle BAC = 40^\circ, \angle BPD = 110^\circ,$ and $\angle DEC = 40^\circ$. Find $\angle ACE$.

Watch Video Solution

9. In the following figure ,ABCD is a parallelogram . Find the value of r .



View Text Solution

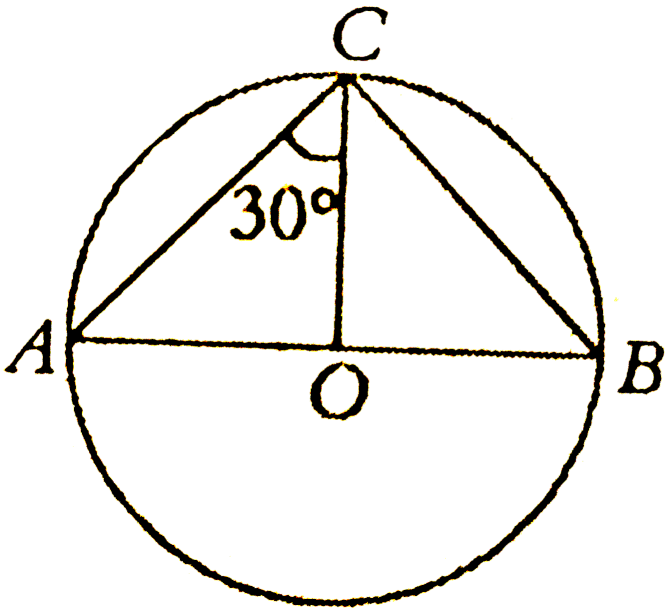
10. The angles of a quadrilateral ABCD are x°, $(x+1)^\circ$, $(x+2)^\circ$ and $(x+3)^\circ$, taken in the same order. Then the quadrilateral ABCD is necessarily a

Watch Video Solution

11. MN and PS are two euqal chords of a circle drawn on either side of centre O of the circle .Both the chords are produced to meet at point A . If

the radius of the circle is 10 cm , MN =12 cm , and OA =17 cm , then find NA.

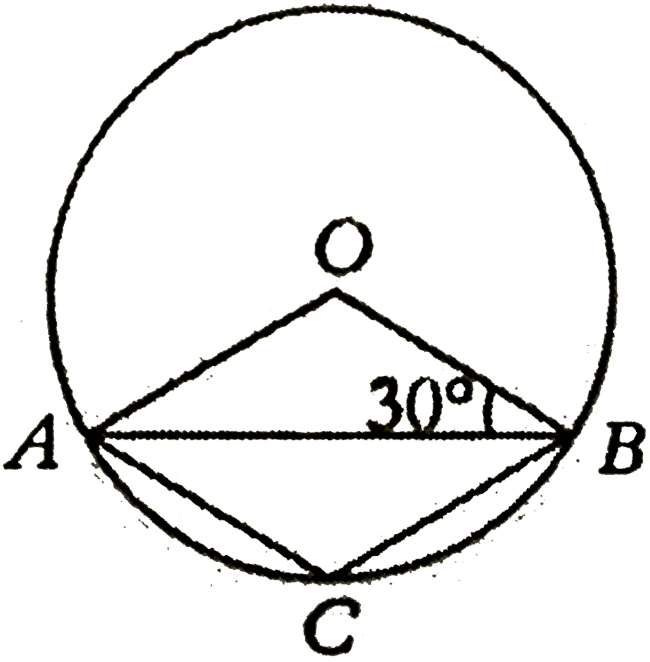
View Text Solution



12.

In the figure above (not to scale), AB is the diameter of the circle with centre O. If $\angle ACO = 30^\circ$, then find $\angle BOC$.

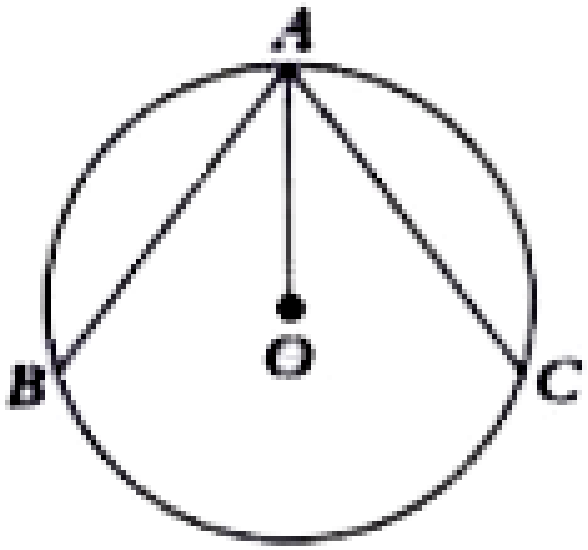
Watch Video Solution



13.

In the figure (not to scale), O is the centre of the circle and $\angle OBA = 30^\circ$. Find $\angle ACB$

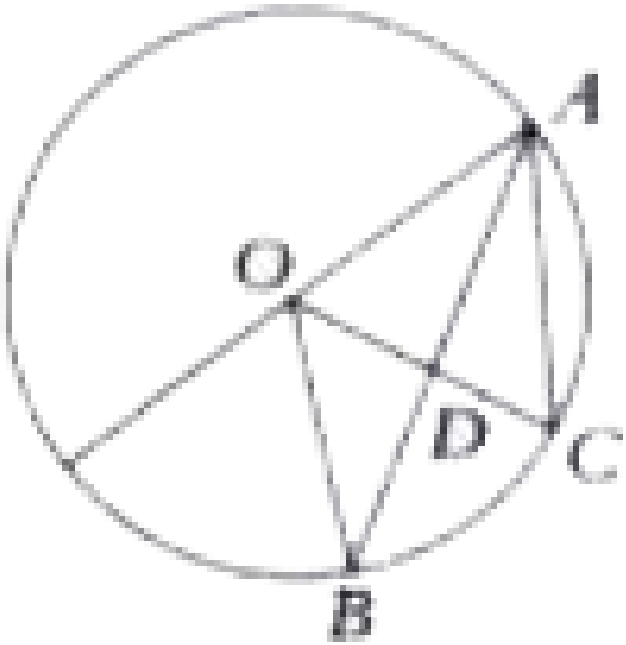
Watch Video Solution



14.

In the figure above (not to scale), AB= AC and $\angle BAO = 25^\circ$. Find $\angle BOC$, if O is the centre of the circle .

Watch Video Solution

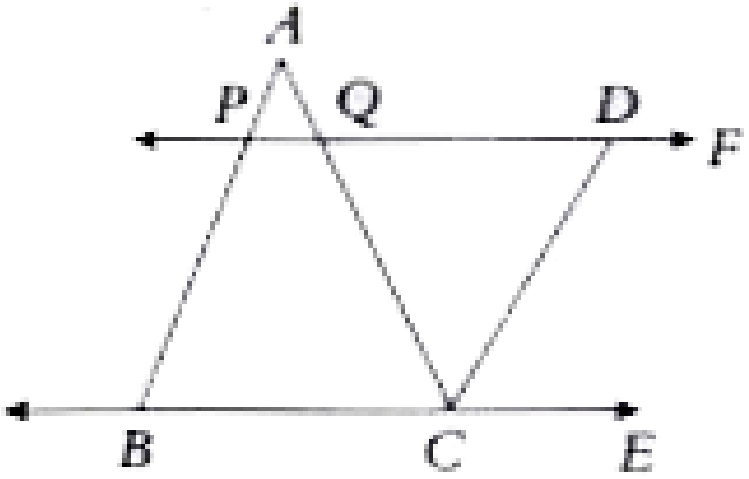


15.

In the above figure (not to scale), O is the centre of the circle AC and OB are parallel lines .If $\angle ACO = 80^\circ$, then find $\angle ADO$.

Watch Video Solution

TEST YOUR CONCEPTS (ESSAY TYPE QUESTIONS)



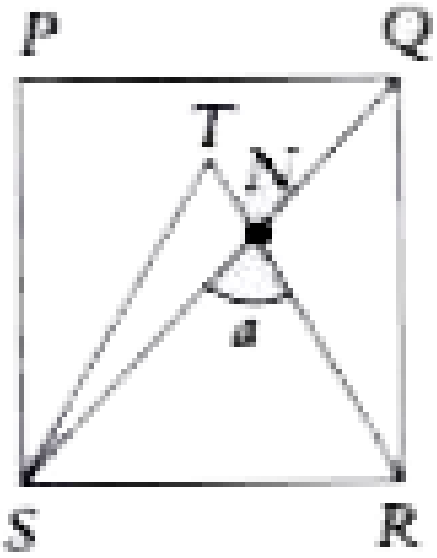
1.

In the figure above (not to scale) , $\overline{PE}||\overline{BE}$ and $\overline{AB}||\overline{CD}$. If $\angle FDC = 130^\circ$ and $\angle ACD = 20^\circ$, find $\angle ACB$ and $\angle ABC$.

Watch Video Solution

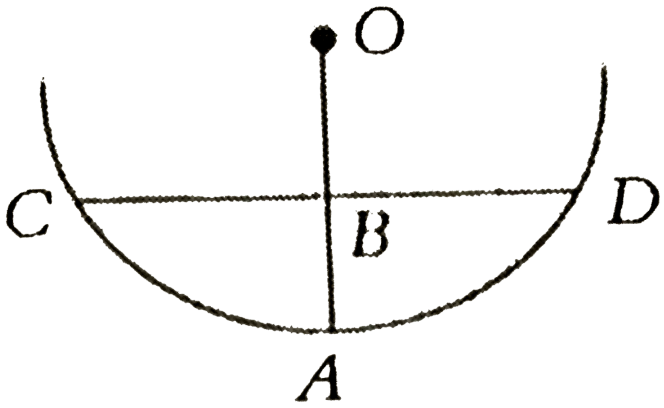
2. In the given below ,PQRS is a square and STR is an euilateral triangle .

Find the value of a .



Watch Video Solution

3. In the figure below, CD is a chord of the semi circle with centre O.

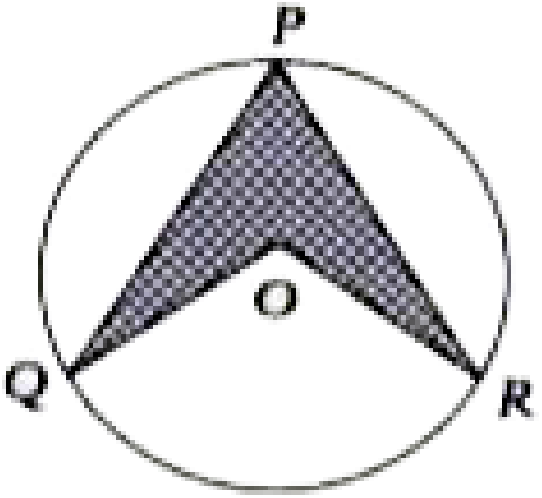


OA is the

radius of the circle. If $CD = 10$ cm, $AB = 2$ cm and $\overline{OA} \perp \overline{CD}$ the length of OB is _____

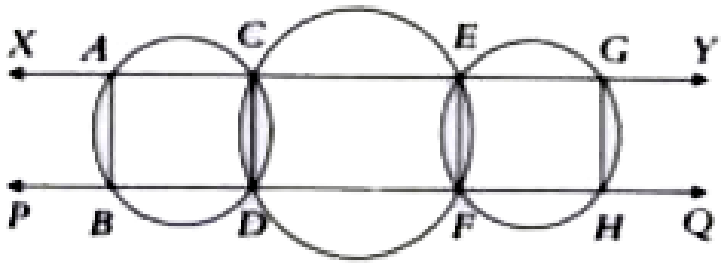
Watch Video Solution

4. In the figure below (not to scale), PQ=PR=8cm and O is the centre of the circle . If each of the chords PQ and PR makes an angle of 120° at the centre of the circle , then find the area of the shaded region .



View Text Solution

5.



In the figure above (not to scale) , $\overline{XY}$ and $\overline{PQ}$ are the secants of three circles . Then , which of the following are necessarily true ?

A. $\overline{AB} \mid\mid \overline{CD}$

B. $\overline{EF} \mid\mid \overline{GH}$

C. $\overline{AB} \mid\mid \overline{EF}$

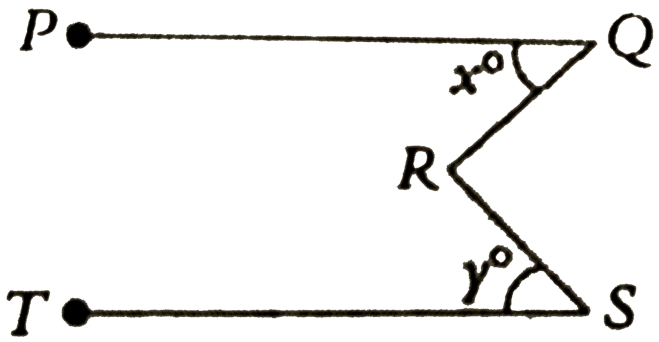
D. $\overline{CD} \mid\mid \overline{GH}$

Answer: Only (c) and (d)

View Text Solution

CONCEPT APPLICATION (Level 1)

1. In the figure below (not to scale) , $\overline{PQ} \mid \mid \overline{TS}$, reflex $\angle QRS = 300^\circ$ and $x - y = 30^\circ$. The measure of y will be



A. 25°

B. 15°

C. 20°

D. `30^(@)

Answer: B

Watch Video Solution

2. In a triangle ABC, if $\angle A > \angle B > \angle C$ and the measures of $\angle A, \angle B$ and $\angle C$ in degrees are integers, then the least possible value of $\angle A$ is

A. 70°

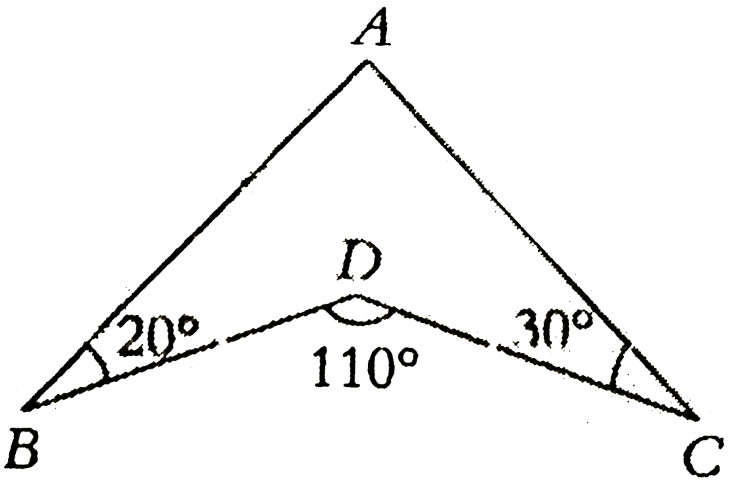
B. 65°

C. 60°

D. 61°

Answer: D

Watch Video Solution



3.

In the above figure, $\angle ABD = 20^\circ$, $\angle BDC = 110^\circ$ and $\angle DCA = 30^\circ$.

What is the value of $\angle BAC$?

A. 30°

B. 60°

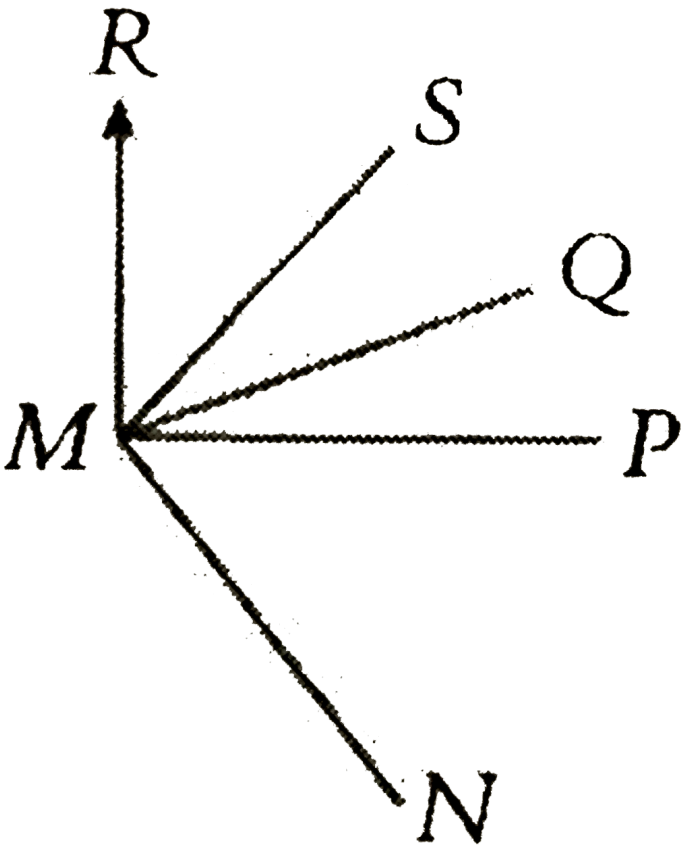
C. 90°

D. 120°

Answer: B

Watch Video Solution

4. In the figure below (not to scale), $\overline{MR} \perp \overline{MP}$, $\overline{MQ} \perp \overline{MN}$, and $\overline{MS}$ is bisector of $\angle RMQ$. If $\angle PMN = 50^\circ$, then find the measure of $\angle RMS$.



A. 25°

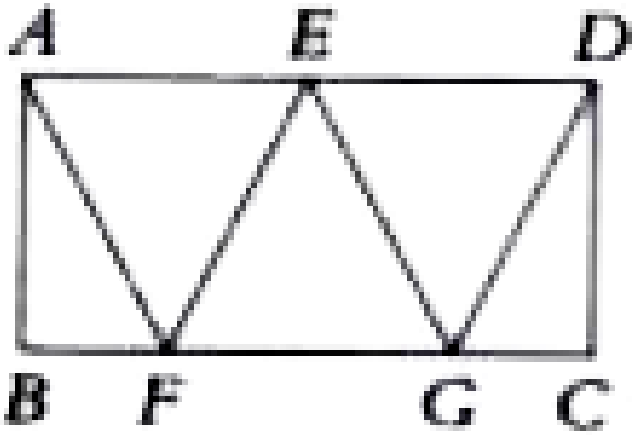
B. 20°

C. 30°

D. 35°

Answer: A

Watch Video Solution



5.

In the figure above (not to scale), $\overline{EF}||\overline{GD}, \overline{AF}||\overline{EG}, \overline{AD} \mid\mid \overline{BC}$, and $\angle DCG = 100^\circ$. if $\angle CDG = 40^\circ$, then find $\angle AEF$.

A. 30°

B. 40°

C. 150°

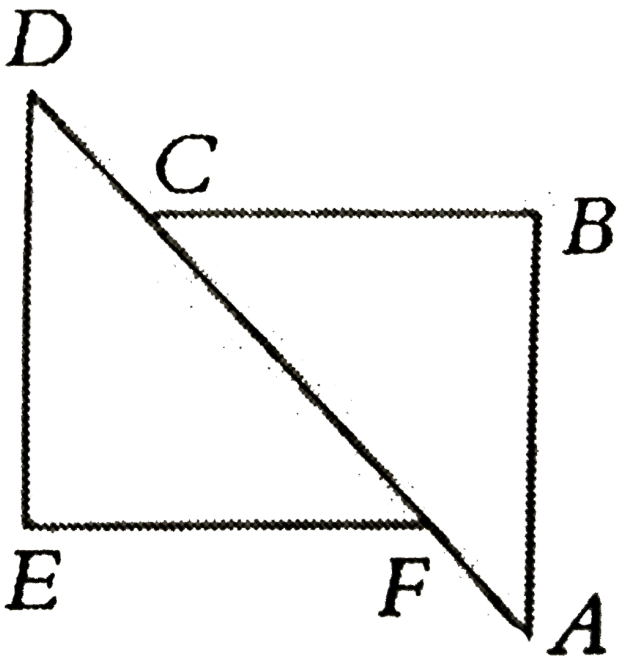
D. 60°

Answer: B

Watch Video Solution

6. In the figure below, $\overline{BC} \mid\mid \overline{EF}$, $BC = EF$ and $DF = AC$. Which of the following congurency axiom(s) is/ are suitable to prove that

$\Delta BCA = \Delta EFD$?



A. $S.\ S.\ S$

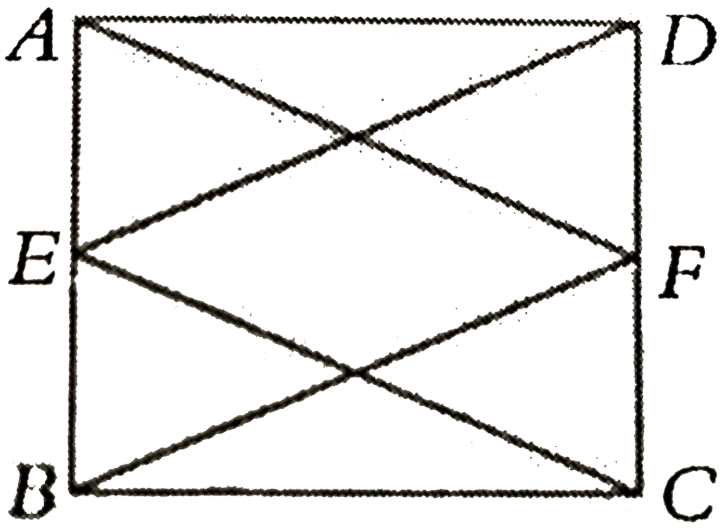
B. $S.\ A.\ S$

C. $R.\ H.\ S$

D. $A.\ S.\ A.$

Answer: B

Watch Video Solution



7.

In the above figure (not to scale), E and F are the mid points of AB and CD respectively.

$\overline{AB}||\overline{CD}$, $\overline{BC}||\overline{AD}$, $\angle ADE = 70^\circ$, AND $\angle BCE = 40^\circ$, $\angle DEC$ is

A. 70°

B. 40°

C. 110°

D. 120°

Answer: C

Watch Video Solution

8. What is the number of lines of symmetry for a parallelogram ?

A. 2

B. 4

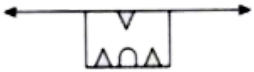
C. 0

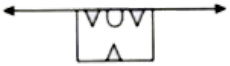
D. 6

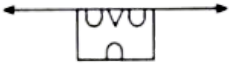
Answer: C

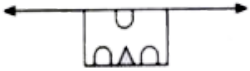
Watch Video Solution

9. Given below are some figures. Choose the image of the given figure to have symmitrical image with respect to the given choices.

A. 

B. 

C. 

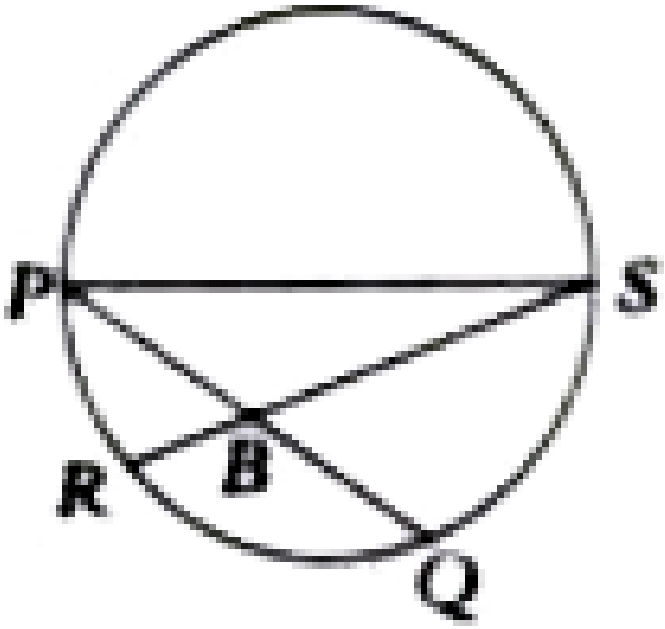
D. 

Answer: A

Watch Video Solution

10. In the given figure , PQ and RS are chords of length 10 cm each intersecting at B . If $\angle PBS = 90^\circ$ and the area of ΔPBS is 32 cm^2 ,

then the length of BR is _____ .



A. 2 cm

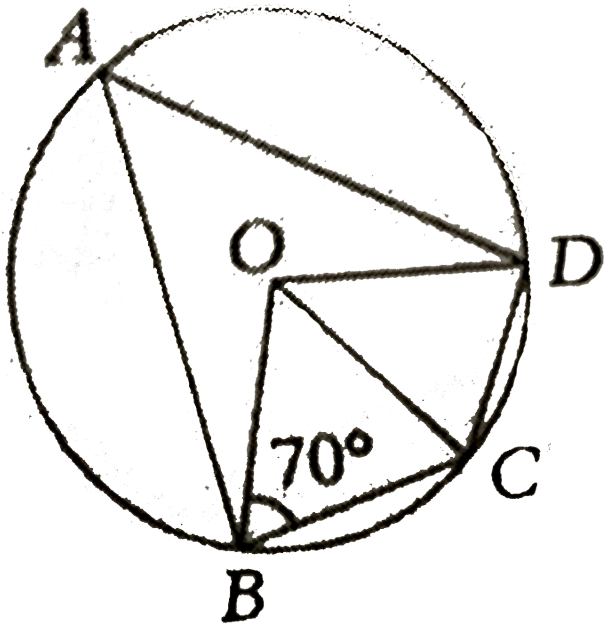
B. 4 cm

C. 6 cm

D. 8 cm

Answer: A

Watch Video Solution



11.

In the above figure (not to scale), O is the centre of the circle. $\overline{BC}$ and $\overline{CD}$ are equal chords. If $\angle OBC = 70^\circ$, then find $\angle BAD$.

A. 40°

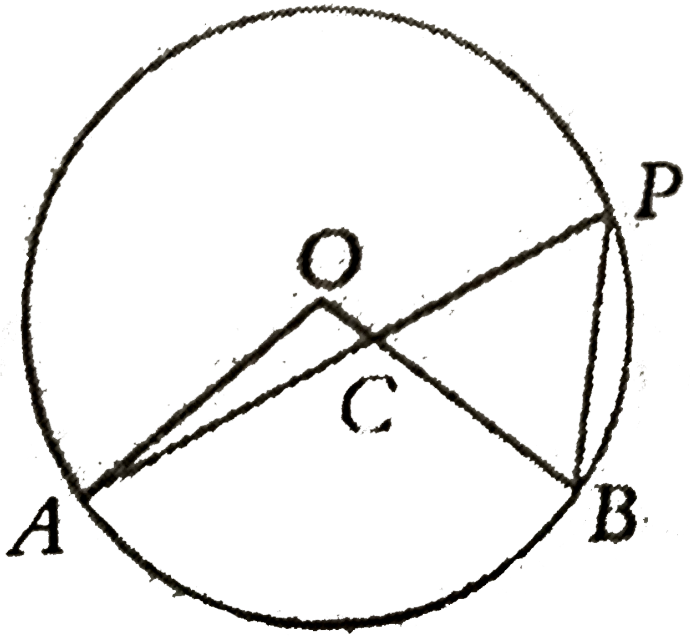
B. 60°

C. 55°

D. 45°

Answer: A

Watch Video Solution



12.

In the above figure (not to scale), O is the centre of the circle. $\overline{AP}$ and $\overline{BP}$ are two chords. C is the point of intersection of $\overline{AP}$ and $\overline{OB}$. If $\angle OAC = 30^\circ$ and $\angle PBC = 80^\circ$, then $\angle AOB =$

A. 110°

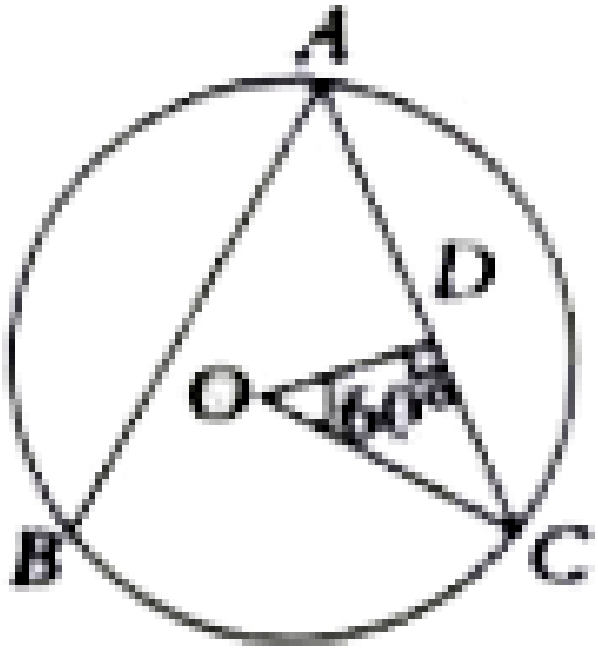
B. 100°

C. 30°

D. 120°

Answer: B

Watch Video Solution



13.

In the above figure , $\overline{AB}$ and $\overline{AC}$ are equal chords and $\overline{OD}$ is

perpendicular to $\overline{AC}$. If $\angle COD = 60^\circ$, then the angle between the chords is _____ .

A. 30°

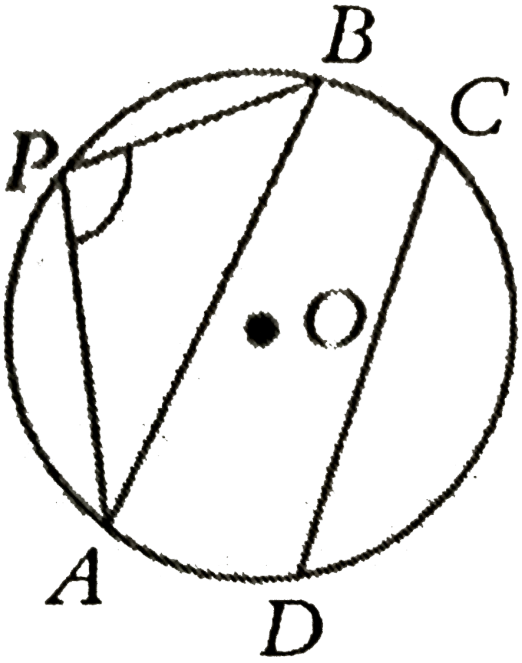
B. 60°

C. 90°

D. 45°

Answer: B

Watch Video Solution



14.

In the above figure, O is the centre of the circle and $AB = CD$. If $\angle APB = 110^\circ$, then find the angle made by the chord CD at the centre.

A. 220°

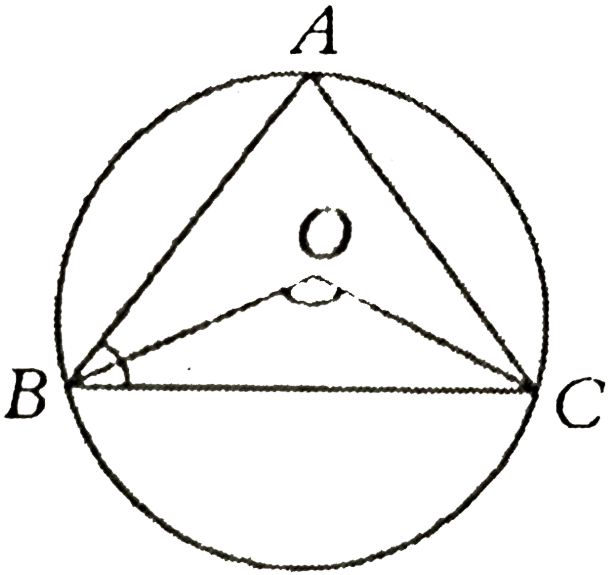
B. 110°

C. 120°

D. 140°

Answer: D

Watch Video Solution



15.

In the above diagram (not to scale), $AB = AC =$. O is the centre of the circle. If $\angle ABC = 80^\circ$, then $\angle BOC =$

A. 20°

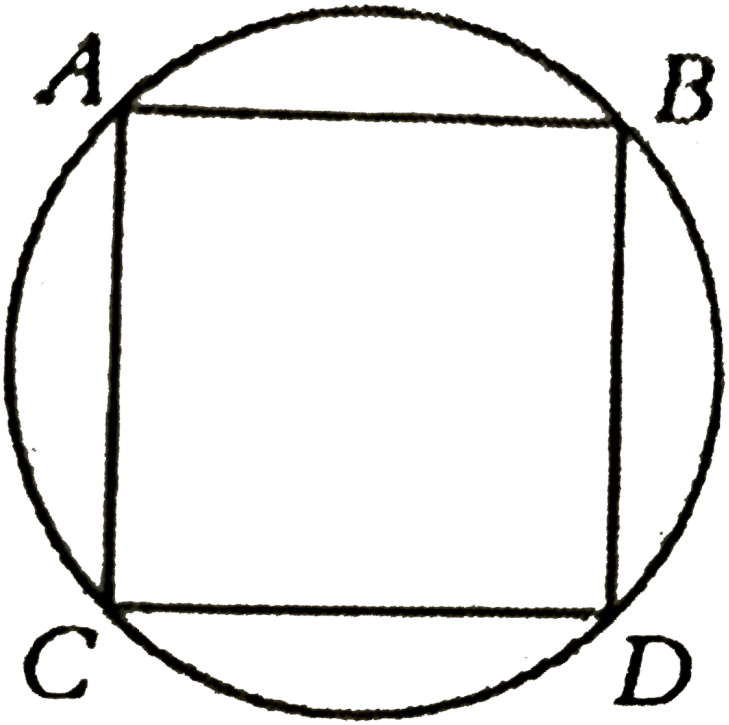
B. 40°

C. 60°

D. 80°

Answer: B

Watch Video Solution



16.

In the figure above (not to scale), $AB = CD$ and $\angle A = 100^\circ$. $\angle C =$

A. 100°

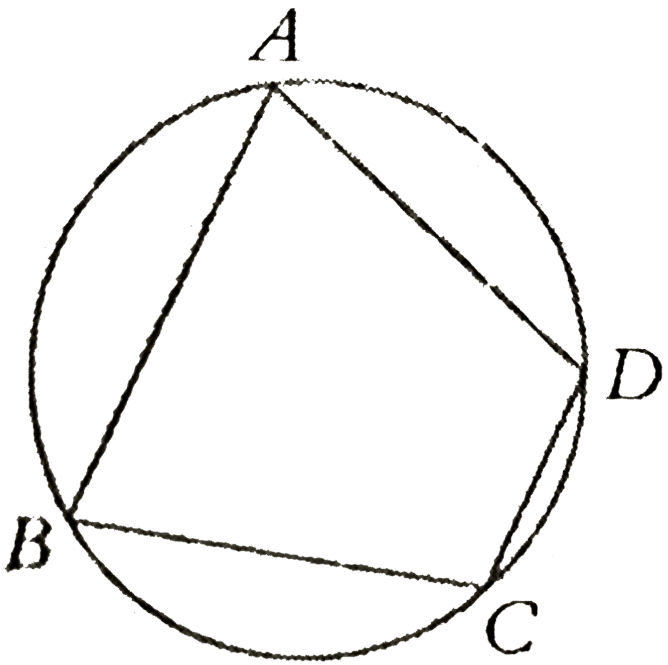
B. 120°

C. 80°

D. 40°

Answer: A

Watch Video Solution



17.

In the above figure, ABCD is a cyclic quadrilateral and $\angle BCD = 2\angle BAD$.

Find the angle made by the diagonal BD at the centre of the circle.

A. 60°

B. 80°

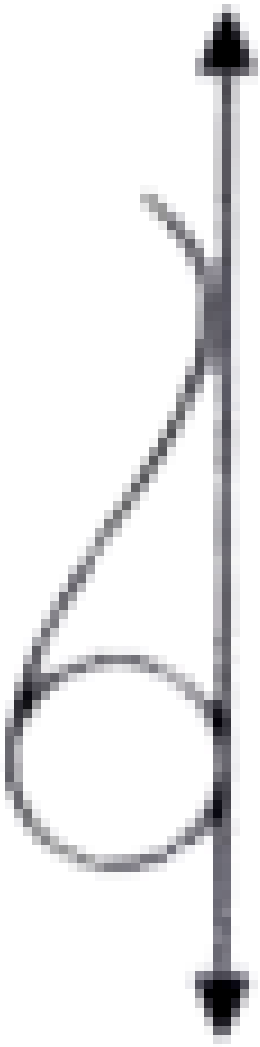
C. 100°

D. 120°

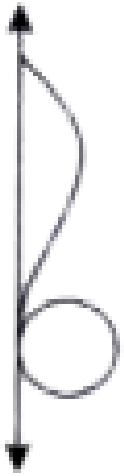
Answer: D

Watch Video Solution

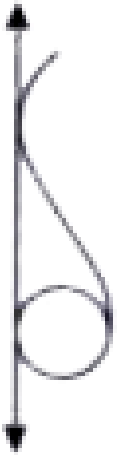
18. In the below figure , one part of the line of symmetry is given . Recognise the second part .

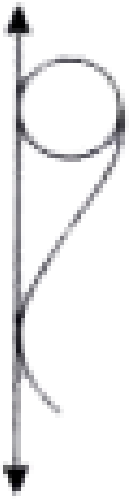


A.

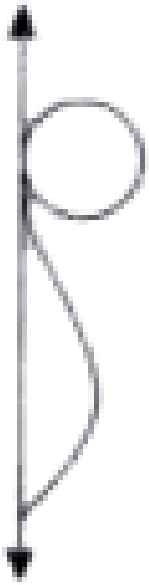


B.





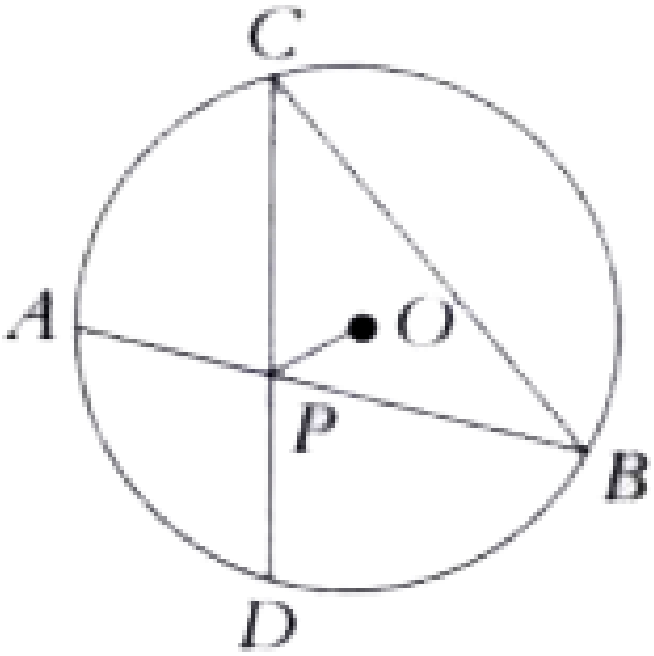
C.



D.

Answer: B

Watch Video Solution



19.

In the above figure , AB and CD are equal chords and O is the centre of the circle . If $\angle OPB = 50^\circ$, then $\angle PBC =$ _____ .

A. 30°

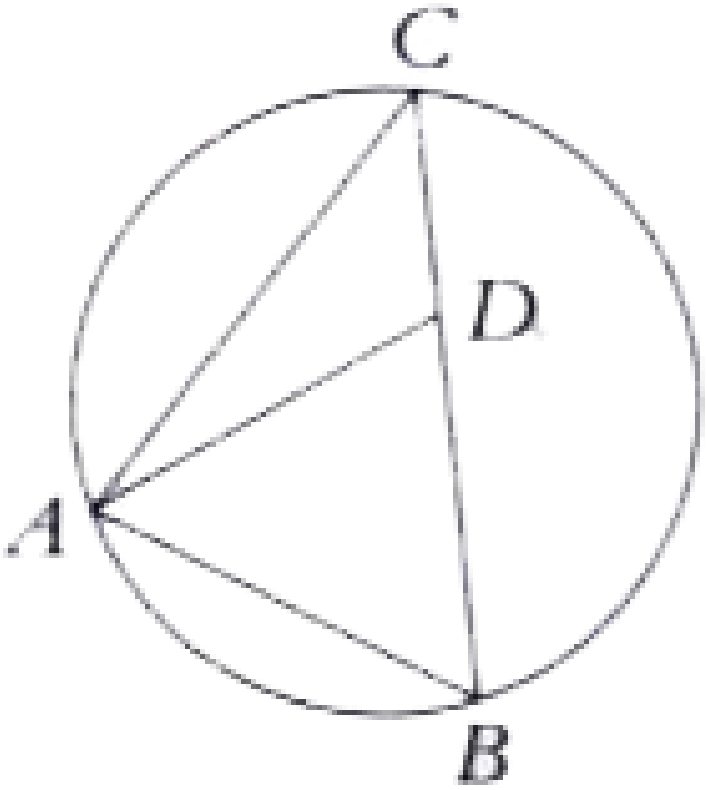
B. 40°

C. 50°

D. 60°

Answer: B

View Text Solution



20.

In the given figure , $\angle DBA = 2\angle DAB = 4\angle CAD$. If $\angle ADC = 120^\circ$,

then the angle made by AB at the centre of the circle is _____.

A. 20°

B. 40°

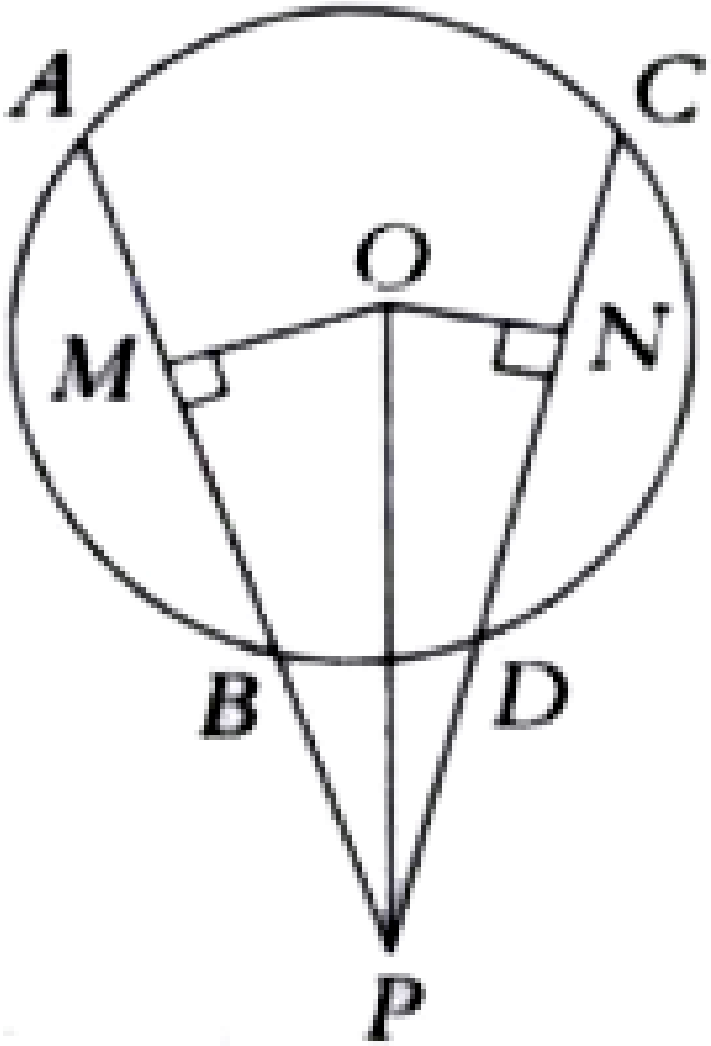
C. 60°

D. 80°

Answer: D

View Text Solution

21. In the given figure (not to scale) , O is the centre of the circle . A ,B,C and D are conyclic and AB =CD . If $\angle MON = 120^\circ$, then find $\angle OPN$.



A. 20°

B. 30°

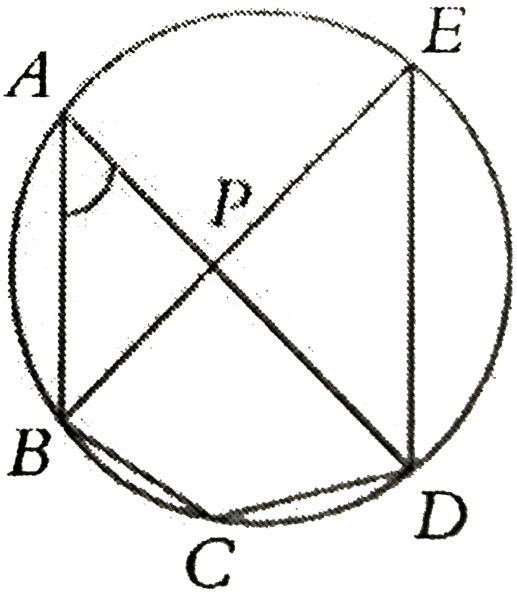
C. 40°

D. 60°

Answer: B

Watch Video Solution

22. In the following figure (not to scale), $\angle ADC = 60^\circ$, $\angle BAD = 80^\circ$ and $\angle EBC = 2\angle PDE$. Find $\angle APE$.



A. 60°

B. 80°

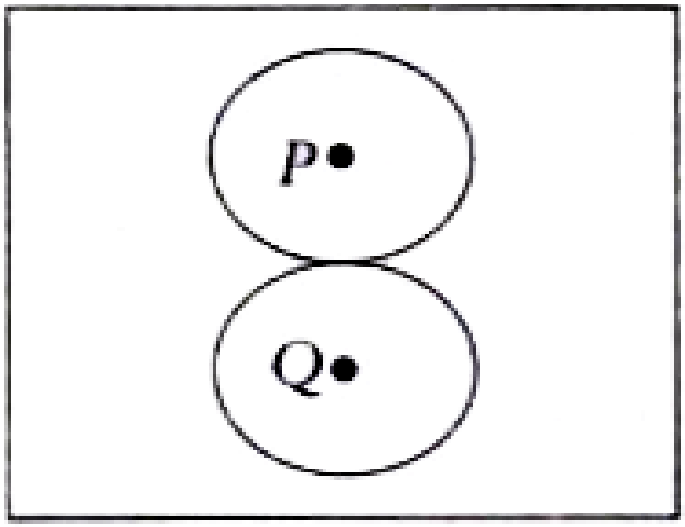
C. 120°

D. 140°

Answer: C

Watch Video Solution

23. In the following figure , the two circles with centres P and Q are congruent.



How many lines of symmetry does the above figure have ?

A. 2

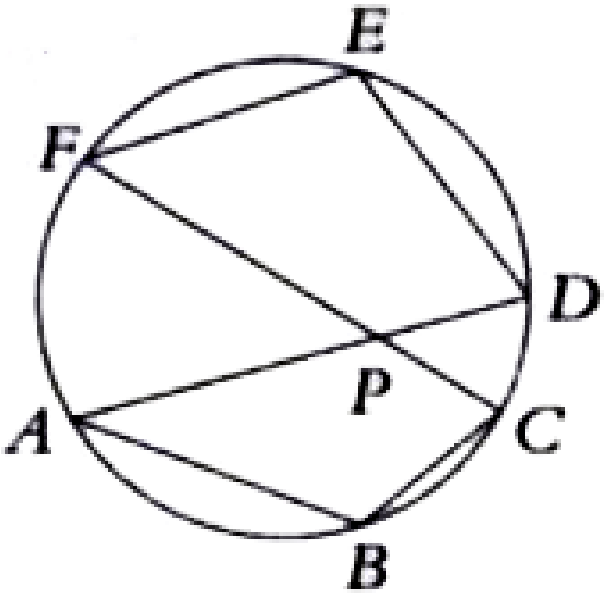
B. 3

C. 1

D. 0

Answer: A

Watch Video Solution



24.

In the above figure (not to scale) $\overline{AB}, \overline{BC}, \overline{CF}, \overline{DE},$ and $\overline{FE}$ are chords of the circle . If $\angle ABC = 100^\circ$ and $\angle FED = 110^\circ$, then $\angle FPA =$ _____.

A. 20°

B. 30°

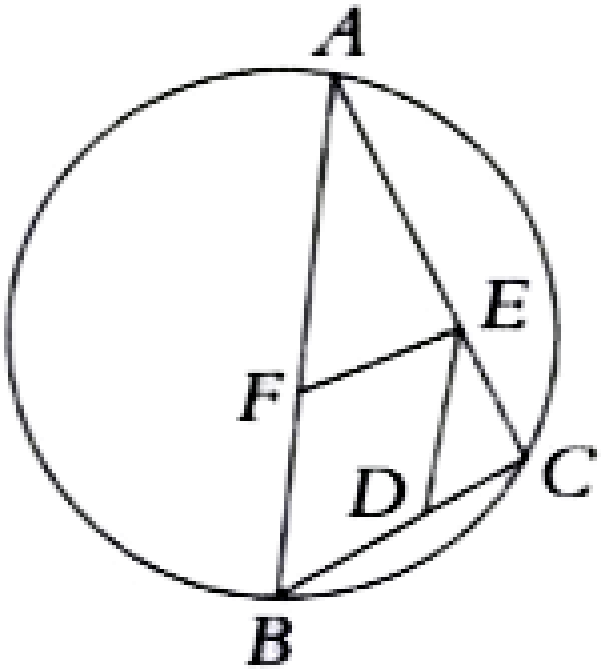
C. 40°

D. 70°

Answer: B

View Text Solution

25. In the figure given below , $\overline{ED}||\overline{AB}$ and $\overline{EF}||\overline{BC}$. If $\angle FED = 40^\circ$ and $\angle DEC = 20^\circ$, then the angle made by $\overline{BC}$ at the centre is _____.



A. 20°

B. 40°

C. 60°

D. 80°

Answer: B

Watch Video Solution

26. The supplement of an angle and the complement of another have a sum equal to half of a complete angle. If the greater angle is 10° more than the smaller , find the smaller angle.

A. 40°

B. 35°

C. 45°

D. 30°

Answer: A

Watch Video Solution

27. ABCD is a trapezium in which $AB \| CD, AB = 20cm, BC = 10$ cm, $CD = 10$ cm and $AD = 10$ cm . Find $\angle ADC$

A. 80°

B. 100°

C. 120°

D. 140°

Answer: C

Watch Video Solution

28. P is an interior point of quadrilateral ABCD and $AB = 3.5$cm, $BC = 4cm, CD = 4.8cm$ and $AD = 3.7$ cm . Then which of the following can be the possible value of $(AP + BP + CP + DP)$?

A. $7.9cm$

B. 8 cm

C. $8.1cm$

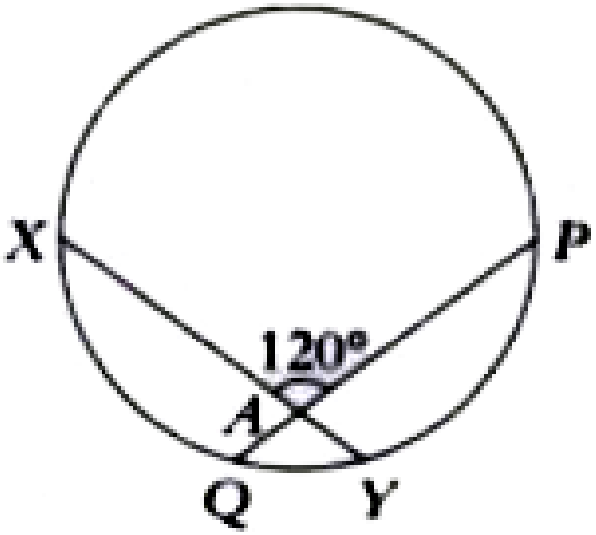
D. $6.4cm$

Answer: C

Watch Video Solution

29. In the following figure (not to scale), two chords XY and PQ are intersecting at the point A . The line segment joining X and P is a diameter of the circle , $\angle XAP = 120^\circ$ and $XU = PQ = 18cm$. Find

the distance between the centre of the circle and the point A .



A. 3 cm

B. 4 cm

C. 8 cm

D. 6 cm

Answer: D

Watch Video Solution

30. The angles of a triangle are in the ratio $2:3:4$. Find them

The following are the steps involved in solving the above problem.

Arrange them in sequential order from the first to the last.

(A) $2x + 3x + 4x = 180^\circ$

$\Rightarrow 9x = 180^\circ \Rightarrow x = 20^\circ$

(B) Let the angles be A,B and C. Given $A:B:C = 2:3:4$

$\Rightarrow A = 2x, B = 3x = C = 4x$

(C) We know that the sumf of the angles of a triangle is $180^\circ, ie., A + B + C = 180^\circ$

(D) The angles are $: A = 2(20^\circ) = 40^\circ, B = 3(20^\circ) = 60^\circ$ and $C = 4(20^\circ) = 80^\circ$.

A. BCAD

B. CBDA

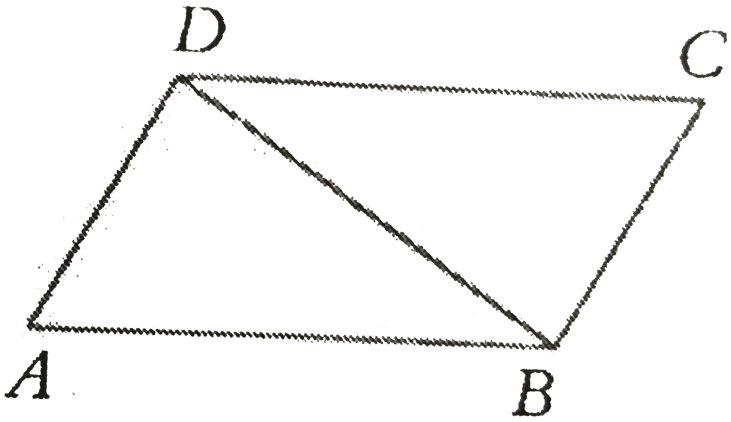
C. BACD

D. BDCA

Answer: A

Watch Video Solution

31. Prove that each of the following diagonals of a parallelogram divides it into two congurent triangles. The following lowing are the steps involved in proving the above results. Arrange them in sequential order.



(A) By SSS conguruence property , $\Delta DAB \cong \Delta BCD$.

(B) Let ABCD be a parallelogram and join BD.

(C) $AB = CD$, $AD = BC$(opposite sides of parallelogram) and $BD = BD$ (common side).

(D) Similarly , AC divides the parallelogram into two congruent triangles.

A. ABCD

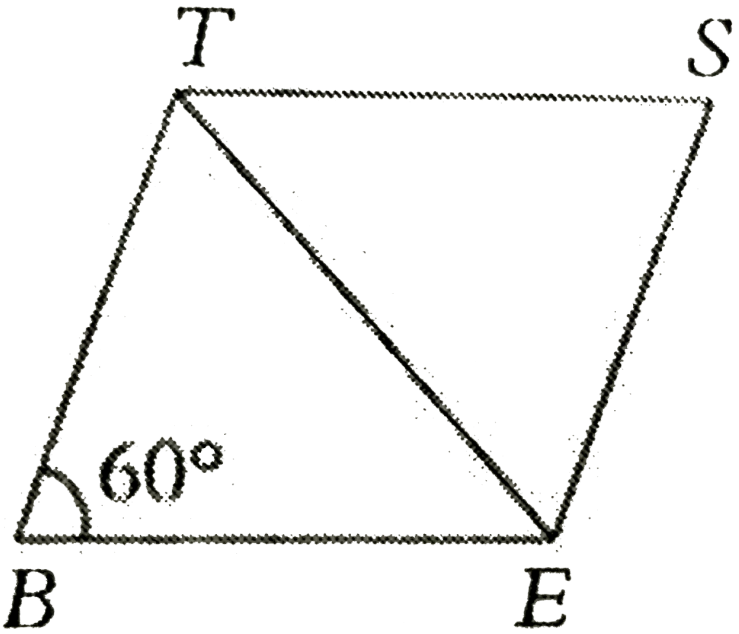
B. BCAD

C. BACD

D. CBAD

Answer: B

Watch Video Solution



32.

In a rhombus BEST,if $\angle B = 60^\circ$ and $BT = 6cm$, then find the length of

the diagonal TE.

The following are the steps involved in solving the above problem. Arrange them in sequential order.

(A) $\Rightarrow \Delta$ BTE is an equilateral triangle.

(B) Join T and E

(C) In $\Delta BET, BT = BE \Rightarrow \angle BTE = \angle BET = \frac{180^\circ - 60^\circ}{2} = 60^\circ (\because \angle B =$

.

(D) $TE = 6$cm

A. BCAD

B. BCDA

C. BACD

D. BADC

Answer: A

Watch Video Solution

33. The following sentences are the steps involved in construction of the incircle for the triangle XYZ in which $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4$ cm.

Arrange them in sequential order from the first to the last.

(A) Mark the foot of the perpendicular from I onto YZ as D.

(B) Construct the triangle XYZ with $\angle Y = 90^\circ$, $XZ = 6$ cm and $YZ = 4cm$.

(C) Draw a circle with I as the centre and ID as radius. This is the required incircle.

(D) Draw the bisectors of $\angle X, \angle Y$ and $\angle Z$ and mark their point of concurrence as I.

A. BDCA

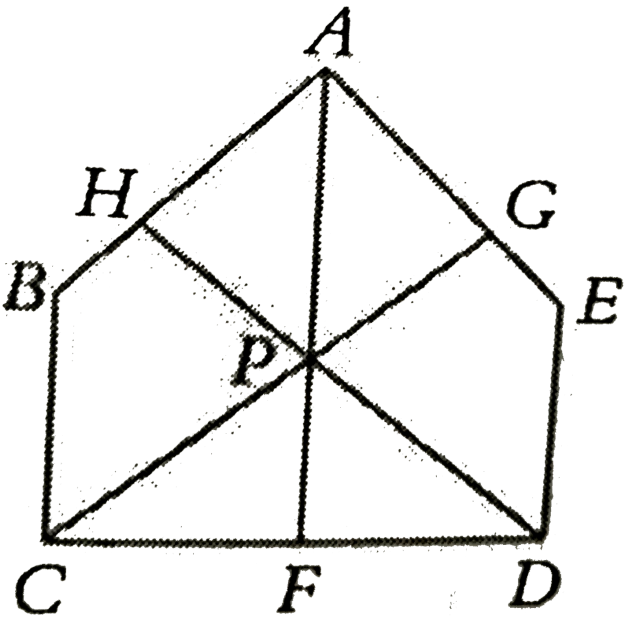
B. DBAC

C. DBCA

D. BDAC.

Answer: D

Watch Video Solution



34.

In the above figure, $\overline{AF}||\overline{ED}, \overline{CG}||\overline{AB}$ and $\overline{AE}\ ||\ \overline{HD}$ If $\angle FPD = 40^\circ$, then $\angle AED =$

A. 40°

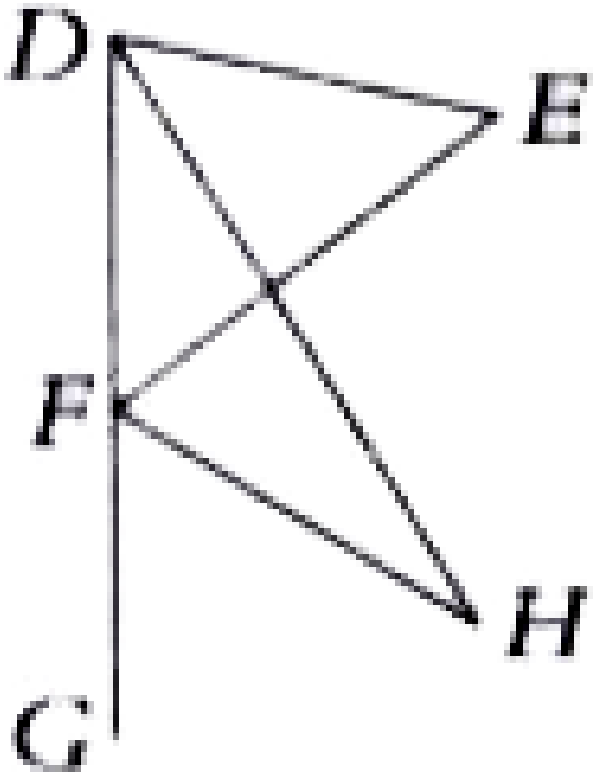
B. 80°

C. 120°

D. 140°

Answer: D

Watch Video Solution



35.

In the above figure , DEF is a triangle whose side DF is produced to G .HF and HD are the bisectors of $\angle EFG$ and $\angle EDG$, respectively . If $\angle DEF = 23\frac{1}{(2)^{\circ}}$, then $\angle DHF$ (in degrees) = _____.

A. $11\frac{1}{2}$

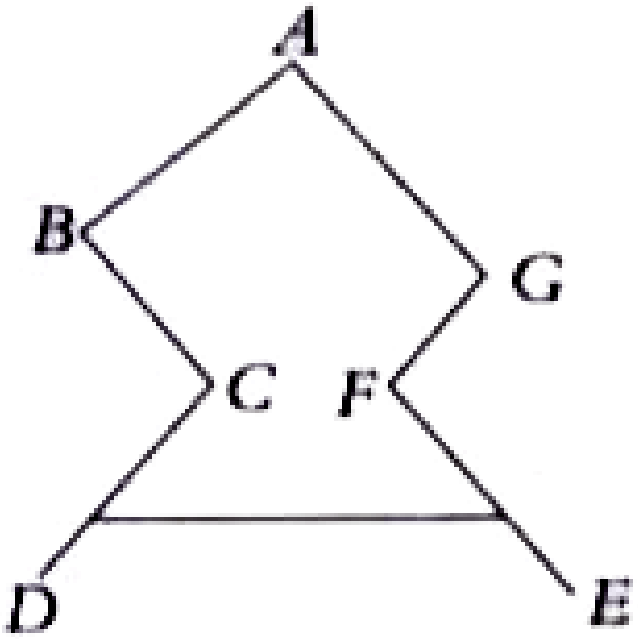
B. $11\frac{2}{5}$

C. $11\frac{3}{4}$

D. $11\frac{1}{3}$

Answer: C

View Text Solution



36.

In the above figure ,$EF||AG, AB||CD||FG,$ and $AG||BC.$ If $\angle EFG = 70^\circ$, then $\angle BAG - \angle BCD =$ ____.

A. 70°

B. 40°

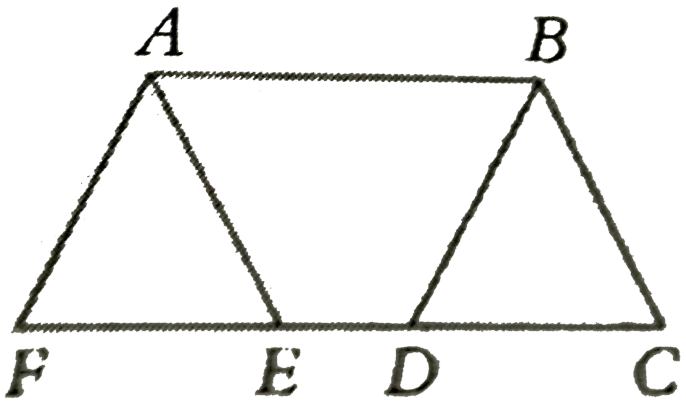
C. 80°

D. 110°

Answer: B

View Text Solution

37. In the figure below, $\overline{AB}||\overline{FC}, \overline{AE}||\overline{BC}$ and $\overline{AF}\ |\ |\ \overline{BD}$. If $\angle F = x^\circ, \angle C = \gamma^\circ, \angle EAB = k^\circ$ and $\angle ABD = p^\circ$, then which of the following options is correct ?



A. $x = k$ and $y = p$

B. $x = p$ and $y = k$

C. $x = 0$ and $y = 0$

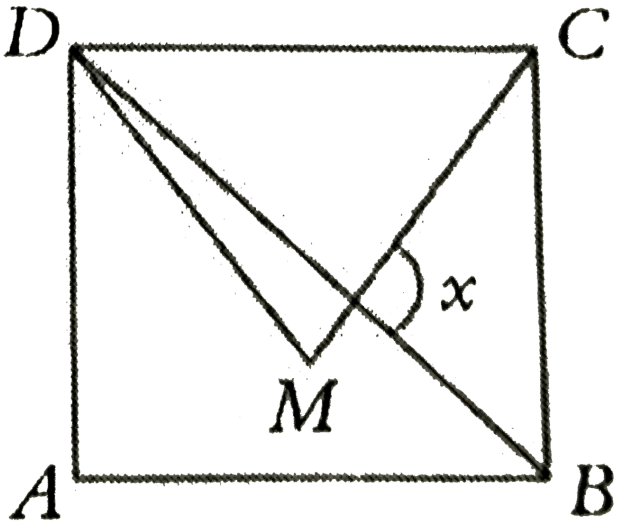
D. Connot be determined

Answer: B

Watch Video Solution

38. In the figure below, ABCD is a square , MDC is an equilateral triangle.

Find the value of x.



A. 75°

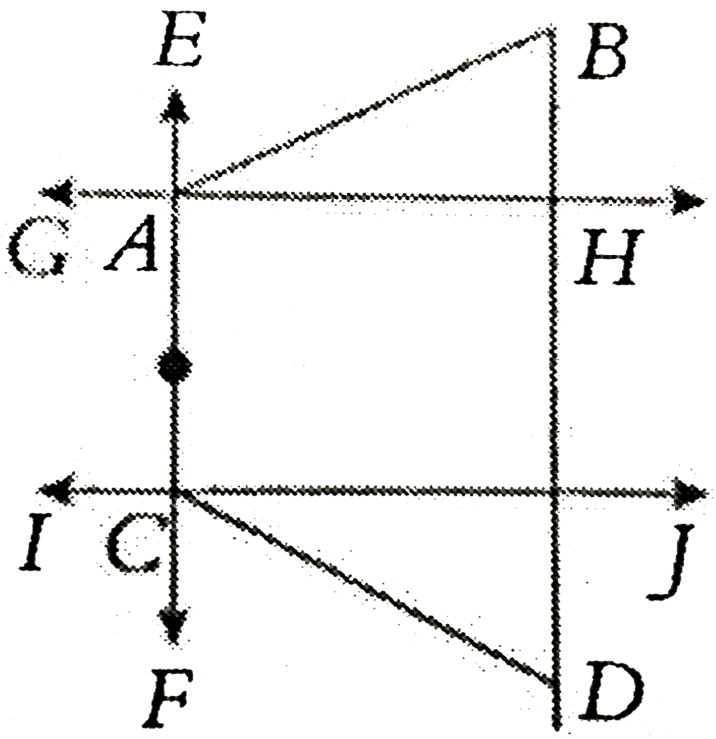
B. 90°

C. 105°

D. 60°

Answer: C

Watch Video Solution



39.

In the above figure, $GH \mid\mid IJ$ and $AC \mid\mid BD, AB$ and CD are bisectors of $\angle EAH$ and $\angle FCJ$ respectively. Find the $\angle ABD + \angle BDC$, if $\angle BAC = 3\angle BDC$.

A. 80°

B. 90°

C. 100°

D. 110°

Answer: B

Watch Video Solution

40. In a mombus PORS,the diagonals intersect at o Given that $\angle P = 120^\circ$ and $OP = 3cm$ .What is the side of the mombus?

A. 4 cm

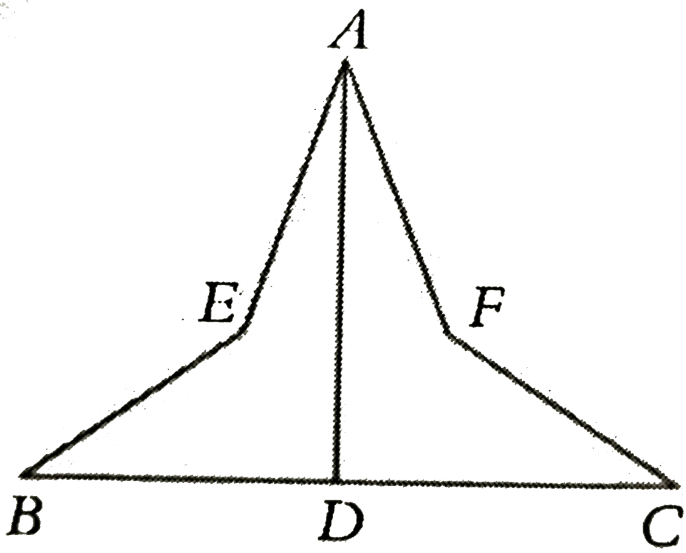
B. 6 cm

C. $3\sqrt{3}cm$

D. 5 cm

Answer: B

Watch Video Solution



41.

In the figuare above (not to scale), $\overline{AD}$ is the angle bisector of $\angle EAF, \angle AFC = 110^\circ$ and $\angle DCF = 20^\circ$. If $\angle DAF = 30^\circ$ and $\angle EBD = 10^\circ$, then $\angle AEB =$

A. 110°

B. 120°

C. 50°

D. 160°

Answer: D

Watch Video Solution

42. In a rhombus ABCD, the diagonal intersect each other at O. If $\angle A = 60^\circ$ and $OA = 2$ cm, then the side of the rhombus is _____

A. 4 cm

B. $4\sqrt{3}cm$

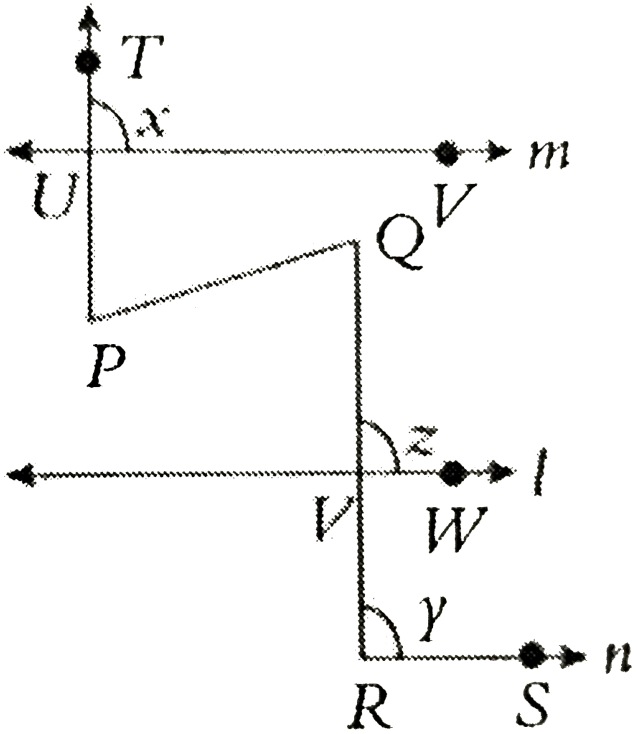
C. $2\sqrt{3}cm$

D. $\sqrt{3}$

Answer: D

Watch Video Solution

43. In the figure below, $m||l||n$ and $\overline{PT} \mid \mid \overline{QR}$. If $\angle TUV = x$, $\angle QRS = \gamma$ and $\angle QVW = z$, then which of the following is necessarily true ?



A. $x > y = z$

B. $x < y = z$

C. $x = y = z$

D. $x = y > z$

Answer: C

Watch Video Solution

44. A circle is passing through three vertices of a rhombus of side 8 cm and its centre is the fourth vertex of the thombus .Find the length of the longest diagonal of the rhombus (in cm) .

A. $8\sqrt{3}$

B. $4\sqrt{3}$

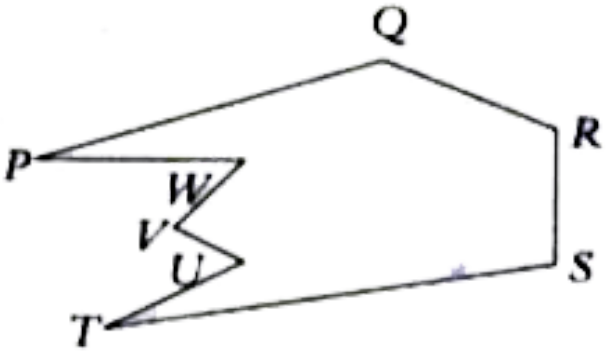
C. $6\sqrt{3}$

D. $2\sqrt{3}$

Answer: A

Watch Video Solution

45. Find the sum of the interior angles of the polygon given below .



A. 1080°

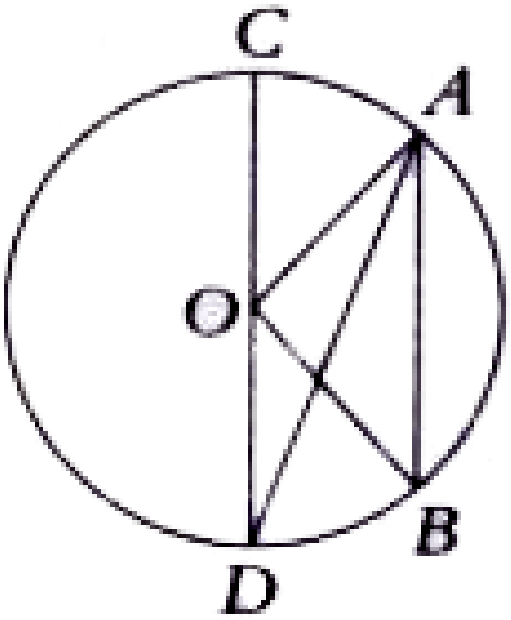
B. 1440°

C. 1800°

D. 900°

Answer: A

Watch Video Solution



46.

In the above figure (not to scale) , O is the centre of the circle and $\overline{CD} \mid\mid \overline{AB}$.If $\angle DAO = 20^\circ$, then $\angle AOB =$ _____.

A. 110°

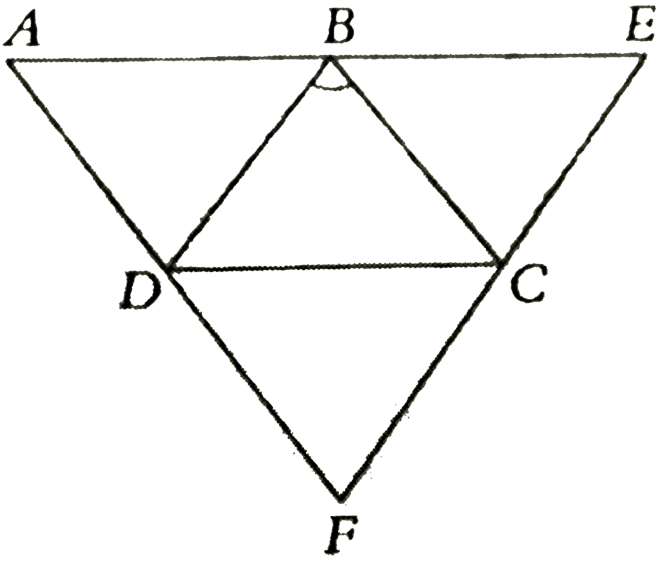
B. 130°

C. 100°

D. 120°

Answer: C

Watch Video Solution



47.

In the given figure, ABCD and BECD are parallelograms, BCFD is a rhombus. If $\angle DBC = 80^\circ$, then which of the following are the angles of the triangle AEF ?

A. $60^\circ, 70^\circ, 50^\circ$

B. $60^\circ, 60^\circ, 60^\circ$

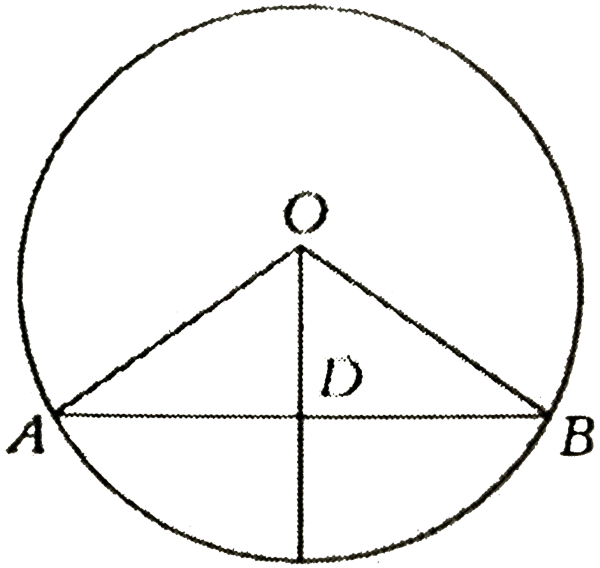
C. $50^\circ, 40^\circ, 90^\circ$

D. $50^\circ, 50^\circ, 80^\circ$

Answer: D

Watch Video Solution

48. The perpenidicular drawn from the centre of a circle bisects any chord of the circle. The following are the steps involved in proving the above result. Arrange them in sequential order.



(A) Let $\overline{OD} \perp \overline{AB}$.

(B) Let AB be the chord of the circle with centre O.

(C) $\Delta ODA \equiv \Delta ODB$ (By RHS congruence property).

(D) $OA = OB$ (radii), $OD = OD$ (common side) and $\angle ODA = \angle ODB = 90^\circ$

(E) $AD = DB$ (corresponding parts in congurents triangles).

A. BADCE

B. BCDAE

C. BACDE

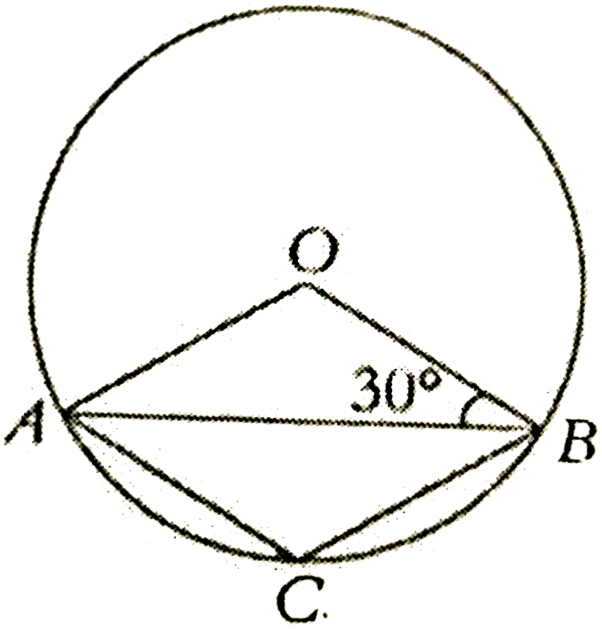
D. BDEAC

Answer: A

Watch Video Solution

49. In the adjacent figure (not to scale), O is the centre of the circle and $\angle OBA = 30^\circ$. Find $\angle ACB$.

The following sentences ae the steps involved in solving the above problem. Arrange them in sequential order from the first to the last.



(A) $\angle OAB = 30^\circ, \angle OBA = 30^\circ$

$\Rightarrow \angle AOB = 180^\circ - 30^\circ - 30^\circ = 120^\circ$

(B) We known that $\angle ACD = \dfrac{\text{Reflex } \angle AOB}{2} = \dfrac{240^\circ}{2} = 120^\circ$

(C) Reflex $\angle AOB = 240^\circ$

(D) $OA = OB$ (radii) $\Rightarrow \angle OBA = \angle OAB = 30^\circ$.

A. ABCD

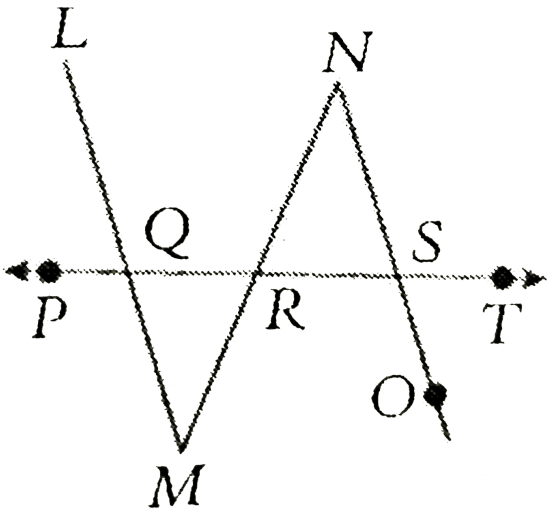
B. DCAB

C. DACB

D. DCBA

Answer: C

Watch Video Solution



50.

In the given figure , $\overline{LM} \mid \mid \overline{NO}, \angle QMR = 50^\circ$ and $\angle RSO = 110^\circ$.

Find $\angle MRQ$.

A. 60°

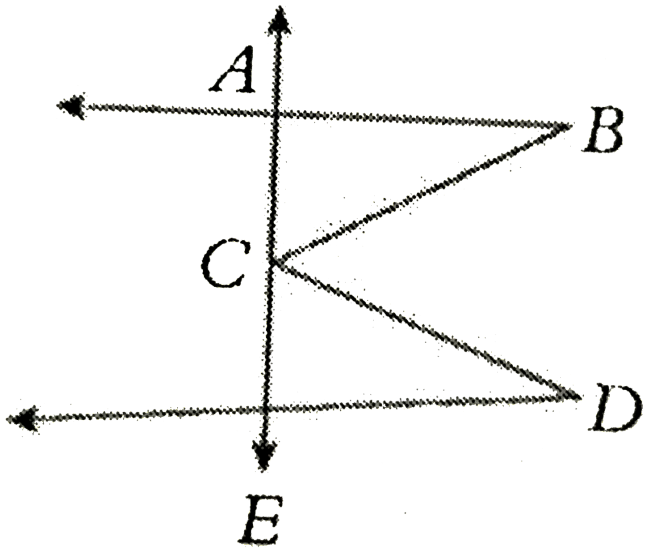
B. 70°

C. 80°

D. 50°

Answer: A

Watch Video Solution



51.

In the above figure, $\overline{AB} \mid\mid \overline{DE}$ and ACE is a straight line . I f $\angle ABC = 30^\circ$ and $\angle CDE = 20^\circ$, then find $\angle BCD$.

A. 40°

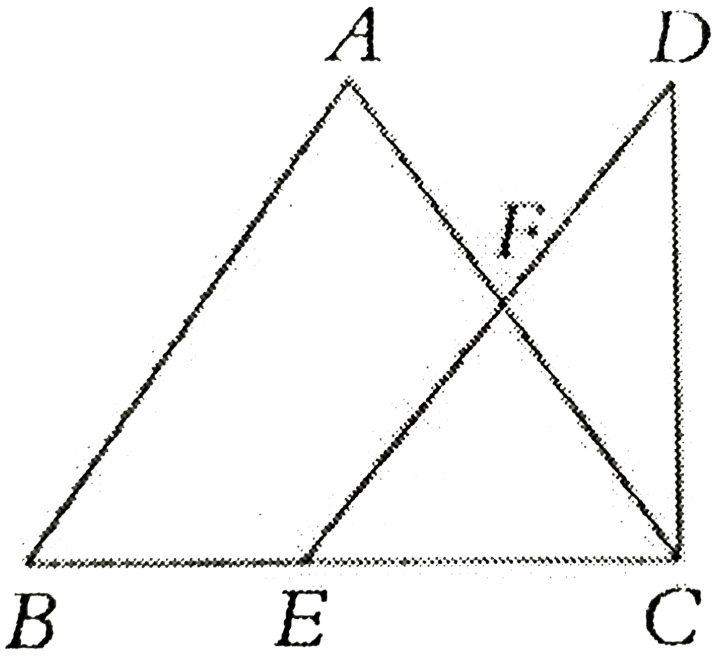
B. 50°

C. 60°

D. 70°

Answer: B

Watch Video Solution



52.

In the given figurs, $\angle BAC = 70^\circ, \angle BCD = 80^\circ, \angle EFC = 80^\circ$ and $\angle ABC = 60^\circ$. How many isoscles triangles are there in the given figure ?

A. 1

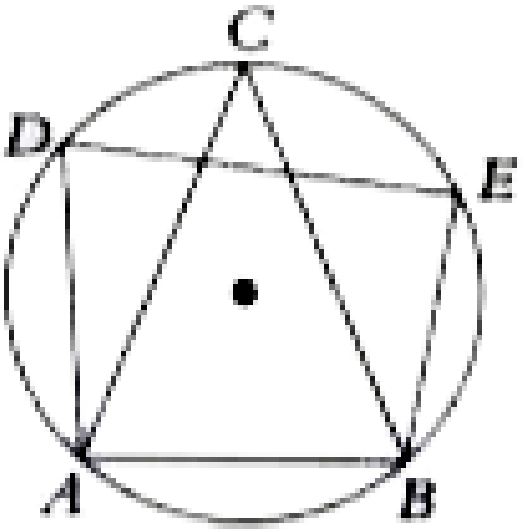
B. 2

C. 3

D. 4

Answer: D

Watch Video Solution



53.

In the figure , A,B,C,andD are the points on the circle .If AB =BE and $\angle ACB = 30^\circ$, then find $\angle ADE$.

A. 30°

B. 45°

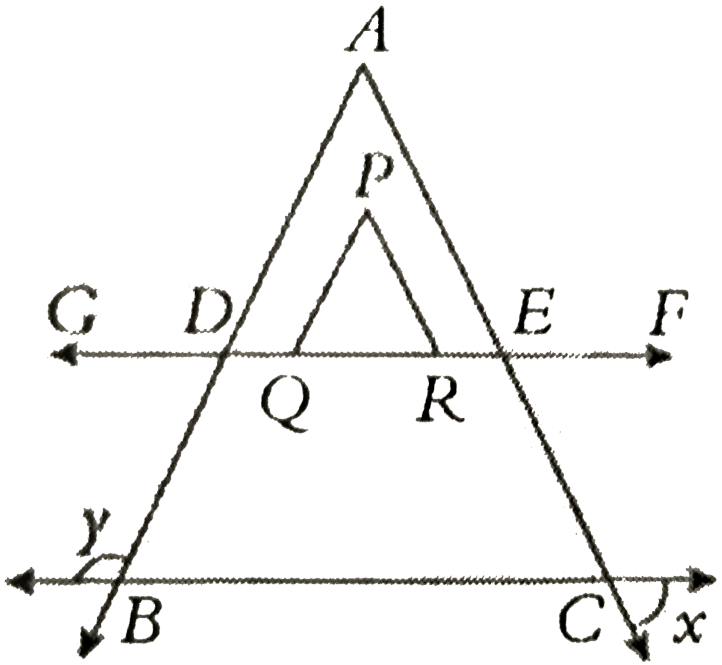
C. 60°

D. 80°

Answer: C

View Text Solution

View Text Solution



54.

In the above figure (not to scale), $\overline{GF}||\overline{BD}$, $\overline{B}||\overline{PQ}$ and $\overline{AC}\ |\ |\ \overline{PR}$ If $\angle x = 40^\circ$ and $\angle y = 110^\circ$, then find $\angle QPR$.

A. 70°

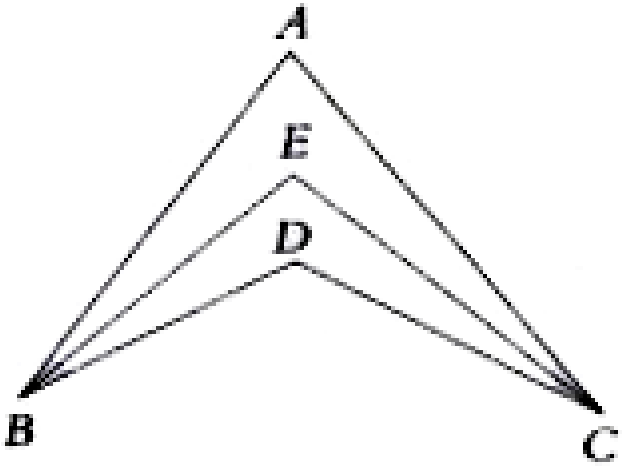
B. 80°

C. 60°

D. 50°

Answer: A

Watch Video Solution



55.

In the figure above (not to scale), $\angle ABE = \angle ECD$ and $\angle EBD = \angle ACE$. If $\angle BAC = 80^\circ$ and $\angle BEC = 100^\circ$, then $\angle BDC$= _____.

A. 80°

B. 100°

C. 110°

D. 120°

Answer: D

View Text Solution

56. In $\Delta PQR, PD \perp QR$ and PO is the bisector of $\angle QPR$. If $\angle PQR = 65^\circ$ and $\angle PRQ = 23\frac{1}{2}.^\circ$ then $\angle DPO$ in degrees $=$

A. $20\frac{3}{4}$

B. $20\frac{1}{2}$

C. $20\frac{1}{5}$

D. $20\frac{1}{4}$

Answer: A

Watch Video Solution

57. In a parallelogram PQRS, the bisectors of $\angle P$ and $\angle Q$ meet on RS.If the perimeter PQRS is 13.5 cm, then find the measure of QR

A. 4.5 cm

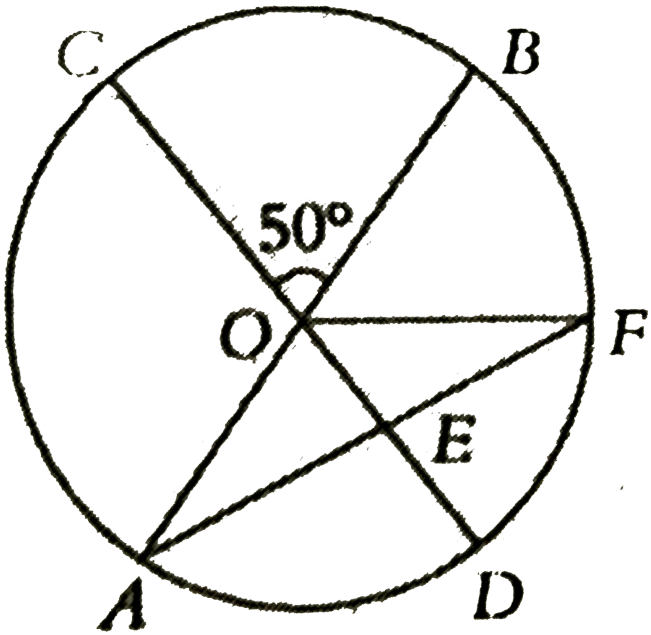
B. 2.25 cm

C. 3 cm

D. 3.75 cm

Answer: B

Watch Video Solution



58.

In the above figure , O is the centre of the circle, AB and CD are diameters.

$\angle COB = 50^\circ = 50^\circ$. If E is the midpoint of AF, then find $\angle ADF$

A. 130°

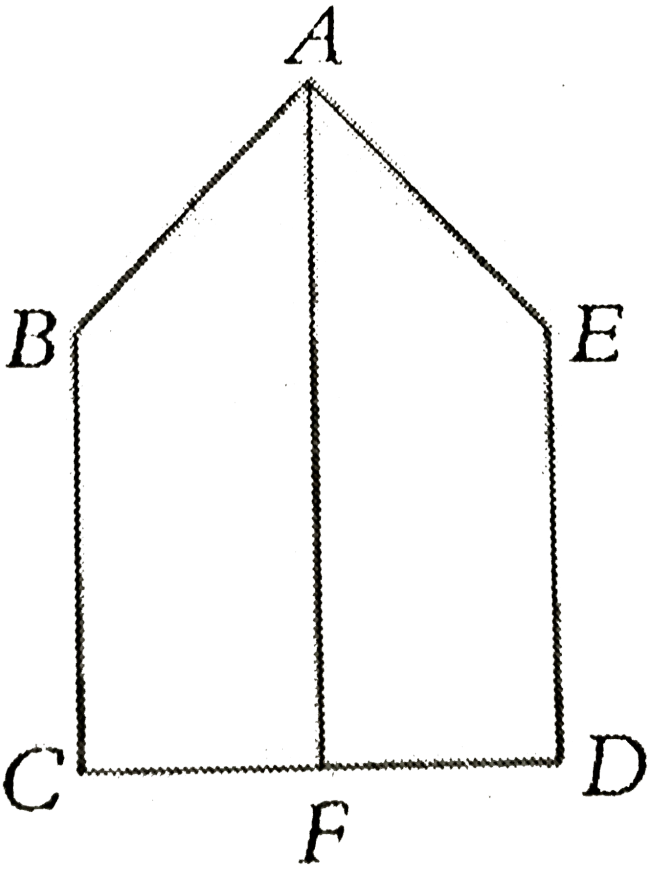
B. 100°

C. 110°

D. 120°

Answer: A

Watch Video Solution



59.

In the figure above (not to scale), ABCDE is symmetrical about AF. If $\angle C = 90^\circ$ and $\angle BAF = 45^\circ$, then find the $\angle E$.

A. 90°

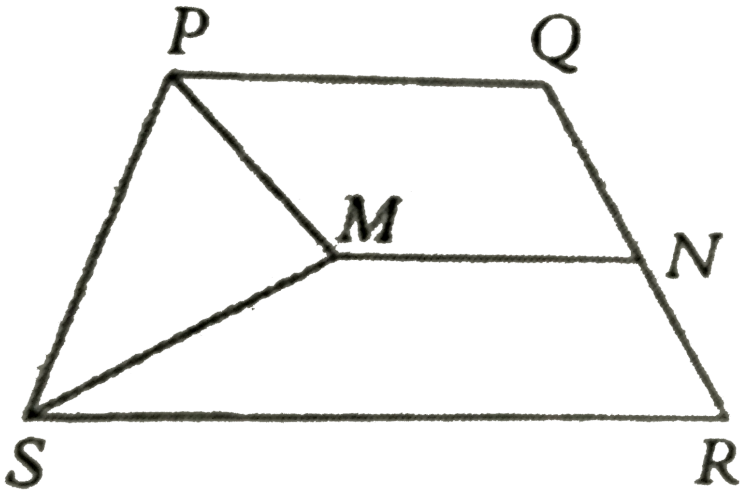
B. 105°

C. 135°

D. 130°

Answer: C

Watch Video Solution



60.

In the given figure, PQRS is an isosceles trapezium and $\overline{PQ}||\overline{SR}||\overline{MN}$ If $\angle SPM = 70^\circ$ and $\angle PQR = 110^\circ$, then find $\angle PMN$.

A. 140°

B. 150°

C. 120°

D. 100°

Answer: A

Watch Video Solution