KD EDUCATION ACADEMY [9582701166]

Time : 6 hour | STD 9 Maths | Total Marks : 230

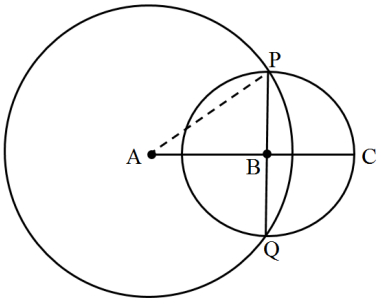
kd 90+ questions ch-9 Circle

*** Choose the right answer from the given options. [1 Marks Each]** **[100]**

1. Two point on a circle makes the:

   (A) Secant (B) Chord (C) Diameters (D) Diameter

2. In the given figure, A and B are the centres of two circles having radii 5cm and 3cm respectively and intersecting at points P and Q respectively. If AB = 4cm, then the length of common chord PQ is:

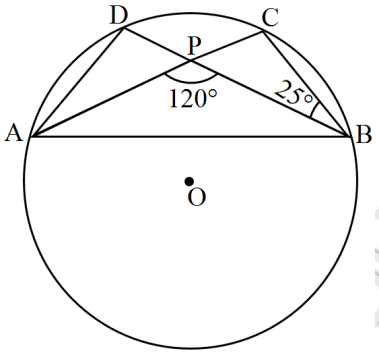


   (A) 3cm (B) 7.5cm (C) 9cm (D) 6cm

3. In the given figure, O is the centre of a circle. If $\angle \mathrm{AOB} = 100^\circ$ and $\angle \mathrm{AOC} = 90^\circ$ then $\angle \mathrm{BAC} = ?$

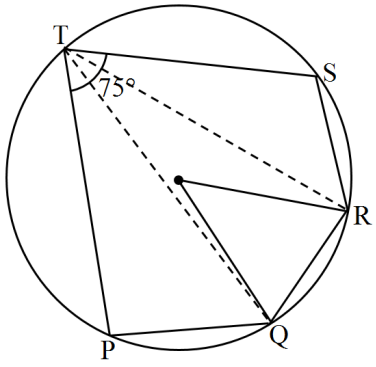
   (A) 85° (B) 80° (C) 95° (D) 75°

4. O is the centre of the given circle. If $\angle \mathrm{APB} = 120^\circ$ and $\angle \mathrm{DBC} = 25^\circ$, then the measure of $\angle \mathrm{ADB}$ is equal to:



   (A) 60º (B) 120º (C) 95º (D) 100º

5. In the given figure PQ = QR = RS and $\angle \mathrm{PTS} = 75^\circ$ then the measure of $\angle \mathrm{QOR}$ is:



(A) 75º (B) 25º (C) 50º (D) 20º

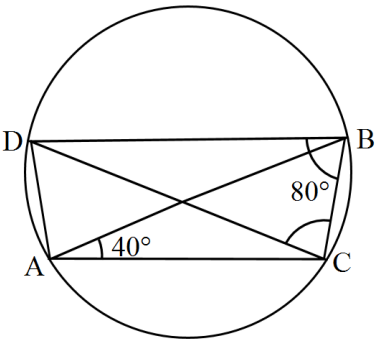
6. If O is the centre of a circle of radius r and AB is a chord of the circle at a distance $\frac{r}{2}$ from O, then $\angle BAO =$

(A) 60° (B) 45° (C) 30° (D) 15°

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

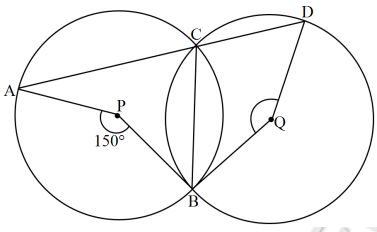
(A) $\sqrt{5}\text{cm}.$ (B) $2\sqrt{5}\text{cm}.$ (C) $2\sqrt{7}\text{cm}.$ (D) $\sqrt{7}\text{cm}.$

8. In the given figure, AB and CD are two intersecting chords of a circle. If $\angle CAB = 40^\circ$ and $\angle BCD = 80^\circ$, then $\angle CBD = ?$



(A) 80º (B) 70º (C) 60º (D) 50º

9. In the given figure, P and Q are centers of two circles intersecting at B and C. ACD is a straight line. Then, the measure of $\angle BQD$ is:



(A) 115º (B) 150º (C) 105º (D) 130º

10. In the given figure, O is the centre of a circle in which $\angle OAB = 20^\circ$ and $\angle OCB = 50^\circ$. Then, $\angle AOC = ?$

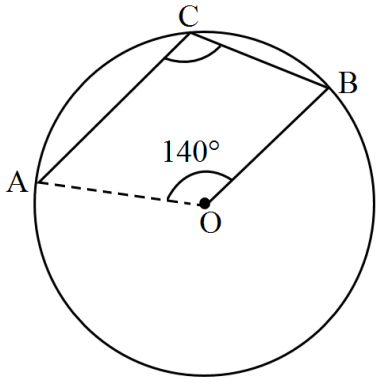
(A) 50° (B) 70° (C) 20° (D) 60°

11. AB and CD are two parallel chords of a circle with centre O such that AB = 6cm and CD = 12cm. The chords are on the same side of the centre and the distance between them is 3cm. The radius of the circle, is:

(A) 7cm (B) 6cm

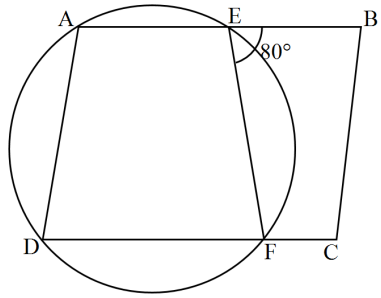
(C) $3\sqrt{5}$cm (D) $5\sqrt{2}$cm

12. In the given figure, O is the centre of a circle and $\angle AOB = 140^\circ$. Then, $\angle ACB = ?$



(A) 110º (B) 70º (C) 80º (D) 40º

13. ABCD is a parallelogram. A circle passes through A and D and cuts AB at E and DC at F. If $\angle BEF = 80^\circ$, then $\angle ABC$ is equal to:



(A) 75º (B) 80º (C) 100º (D) 120º

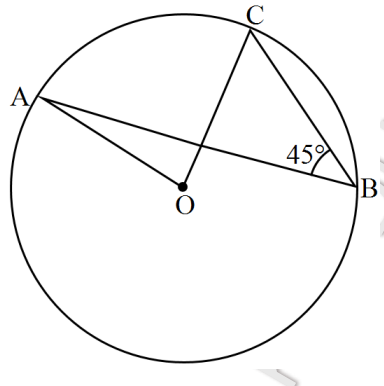
14. If A , B, C are three points on a circle with centre O such that $\angle AOB = 90^\circ$ and $\angle BOC = 120^\circ$, then $\angle ABC =$

(A) 60° (B) 75° (C) 90° (D) 135°

15. Number of circles that can be drawn through three non-collinear points is:

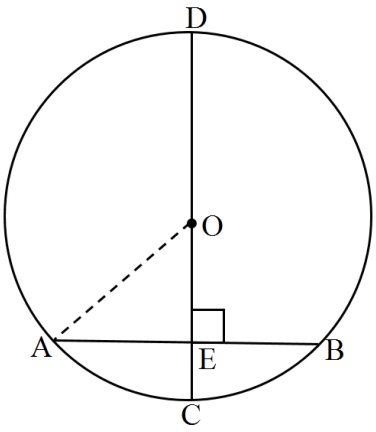
(A) 2 (B) 1 (C) 0 (D) 3

16. In the given figure, if $\angle ABC = 45^\circ$, then $\angle AOC =$



(A) 75º (B) 45º (C) 90º (D) 60º

17. In the given figure, CD is the diameter of a circle with centre O and CD is perpendicular to chord AB. If AB = 12cm and CE = 3cm, then radius of the circles is:



(A) 9cm (B) 6cm (C) 8cm (D) 7.5cm

18. An angle in the semicircle is:

(A) 360º (B) None of these. (C) 180º (D) 90º

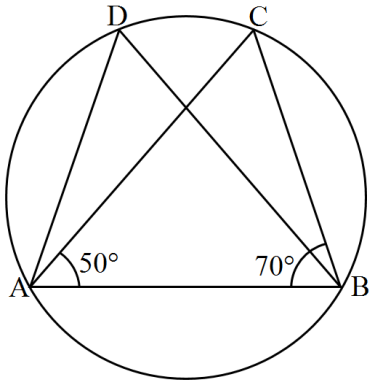
19. Two circle are congruent if they have equal.

(A) Radius (B) Diameter (C) Secant (D) Chord

20. A circle is drawn. It divides the plane into:

(A) No Parts (B) 4 Parts (C) 5 Parts (D) 3 Parts

21. In the given figure, if $\angle \mathrm{CAB} = 50^\circ$ and $\angle \mathrm{ABC} = 70^\circ$, then $\angle \mathrm{ADB}$ is equal to:

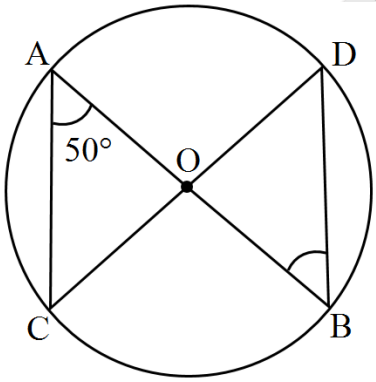


(A) 60º (B) 80º (C) 70º (D) 50º

22. If the length of a chord of a circle is 16cm and is at a distance of 15cm from the centre of the circle, then the radius of the circle is:

(A) 15cm. (B) 16cm. (C) 17cm. (D) 34cm.

23. In the given figure, O is the centre of a circle. If $\angle \mathrm{OAC} = 50^\circ$, then $\angle \mathrm{ODB} = ?$



(A) 40º (B) 50º (C) 75º (D) 60º

24.

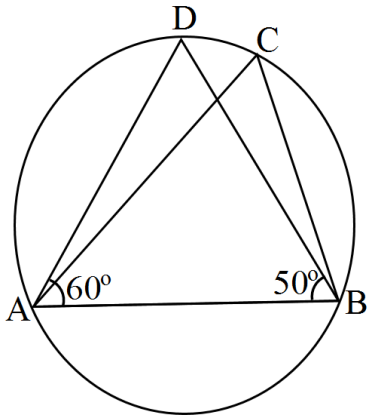
In the given figure, CD is the diameter of a circle with centre O and CD is perpendicular to chord AB. If AB = 12cm and CE = 3cm, then radius of the circles is:

(A) 6cm (B) 9cm (C) 7.5cm (D) 8cm

25. Circle having same centre are said to be:

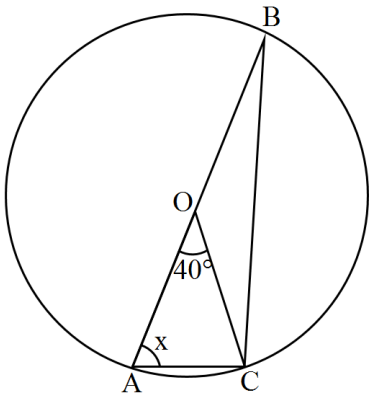
(A) Secant (B) Concentric (C) Chord (D) Circle

26. In the figure, if $\angle DAB = 60^\circ, \angle ABD = 50^\circ$ then $\angle ACB$ is equal to:



(A) 80º (B) 60º (C) 50º (D) 70º

27. In a figure, O is the centre of the circle with AB as diameter. If $\angle AOC = 40^\circ$, the value of x is equal to:



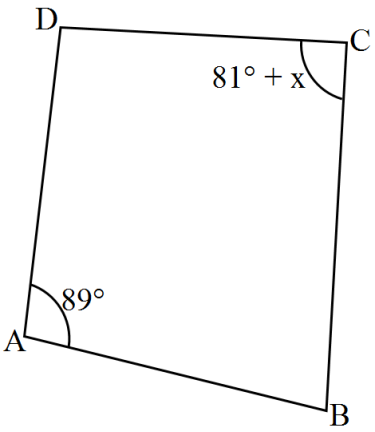
(A) 60º (B) 70º (C) 50º (D) 80º

28. Write the correct answer in the following:

ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 140^\circ$, then $\angle BAC$ is equal to:

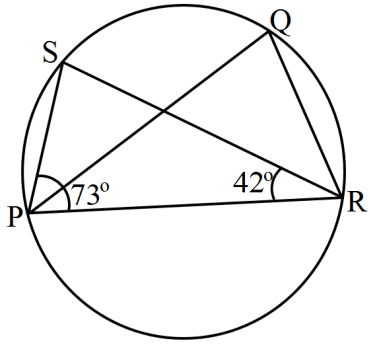
(A) 80°. (B) 50°. (C) 40°. (D) 30°.

29. For what value of x in the figure, points A, B, C and D are concyclic?



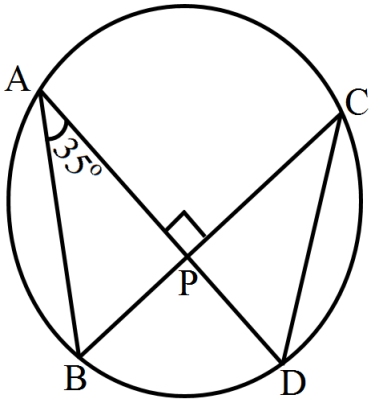
(A) 9º (B) 10º (C) 11º (D) 12º

30. In the figure, if $\angle SPR = 73^\circ, \angle SRP = 42^\circ$ then $\angle PQR$ is equal to:



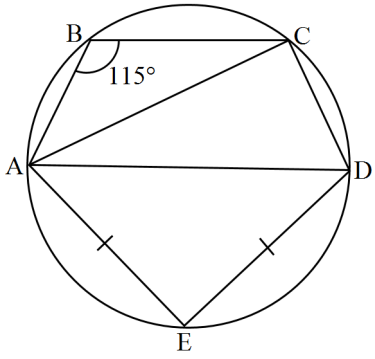
(A) 74º (B) 76º (C) 70º (D) 65º

31. Chords AD and BC intersect each other at right angles at point P. $\angle DAB = 35^\circ$, then $\angle ADC$ is equal to:



(A) 35º (B) 45º (C) 65º (D) 55º

32. In the given figure, AD is the diameter of the circle and AE = DE. If, $\angle ABC = 115^\circ$, then the measure of $\angle CAE$ is:

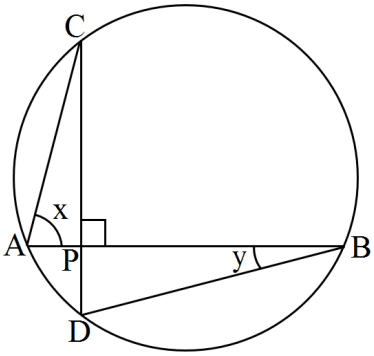


(A) 70º (B) 60º (C) 80º (D) 90º

33. In a circle with centre O, AB and CD are two diameters perpendicular to each other. The length of chord AC, is:

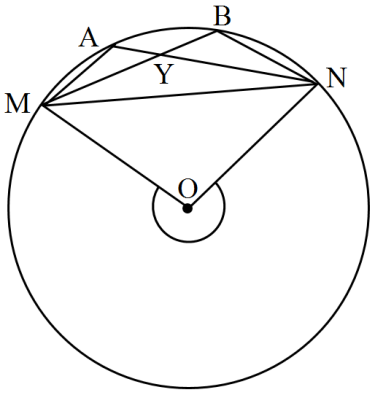
(A) $\frac{1}{\sqrt{2}\,AB}$ (B) $\sqrt{2}$ (C) $\frac{1}{2AB}$ (D) $2AB$

34. In the given figure, if chords AB and CD of the circle intersect each other at right angles, then, x + y =



(A) 90º (B) 60º (C) 75º (D) 45º

35. In the given figure, M, A, B and N are points on a circle having centre O. AN and MB cut at Y. If $\angle NYB = 50^\circ$ and $\angle YNB = 20^\circ$, then reflex $\angle MON$ is equal to:

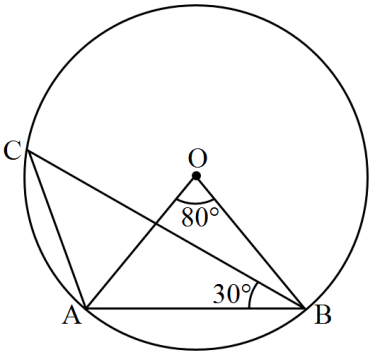


(A) 260º (B) 200º (C) 220º (D) 240º

36. The relation between diameter and radius of a circle is:

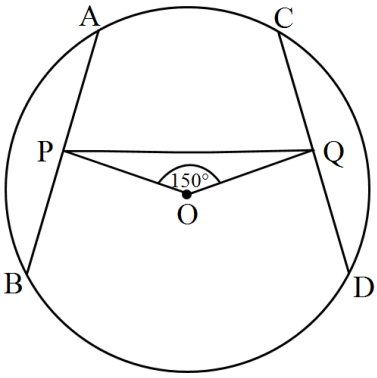
(A) $d = 2\pi r$ (B) d = 2r (C) r = 2d (D) d = r

37. In the given figure, if $\angle AOB = 80^\circ$ and $\angle ABC = 30^\circ$, then $\angle CAO$ is equal to:



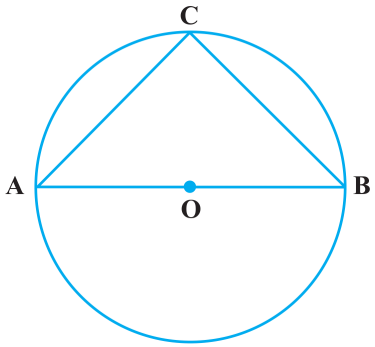
(A) 60º (B) 40º (C) 80º (D) 30º

38. In Fig., AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendiculars on chords AB and CD, respectively. If $\angle POQ = 150^\circ$, then $\angle APQ$ is equal to:



(A) 60º (B) 30º (C) 15º (D) 75º

39. Write the correct answer in the following:
In Fig. if AOB is a diameter of the circle and AC = BC, then $\angle CAB$ is equal to:

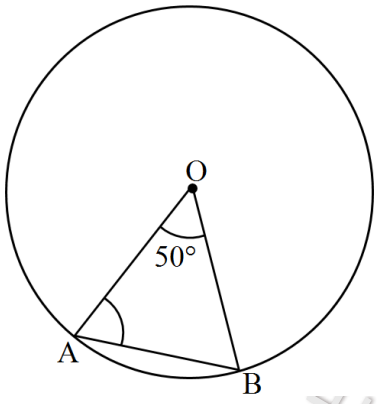


(A) 30°. (B) 60°. (C) 90°. (D) 45°.

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

(A) 41° (B) 23° (C) 67° (D) 18°

41. In the given figure, O is the centre of a circle. Then, $\angle OAB =$

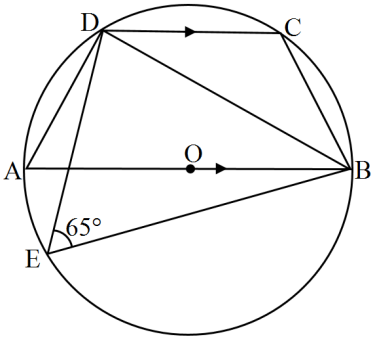


(A) 50º (B) 55º (C) 60º (D) 65º

42. If AB = 12cm, BC = 16 and AB is perpendicular to BC, then the radius of the circle passing through the points A, B and C is:.

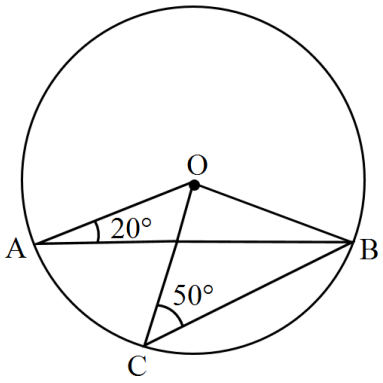
(A) 12cm (B) 6cm (C) 8cm (D) 10cm

43. AOB is the diameter of the circle. ABCD is a cyclic trapezium in which AB || DC. If $\angle BED = 65^\circ$, then $\angle BDC$ is equal to:



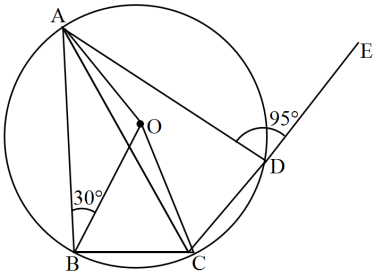
(A) 40º (B) 25º (C) 65º (D) 75º

44. In the given figure, O is the centre of a circle in which $\angle OAB = 20^\circ$ and $\angle OCB = 50^\circ$. Then, $\angle AOC = ?$



(A) 20º (B) 60º (C) 70º (D) 50º

45. In the given figure, ABCD is a quadrilateral inscribed in circle with centre O. CD is produced to E. If $\angle ADE = 95^\circ$ and $\angle OBA = 30^\circ$, then $\angle OAC$ is equal to:

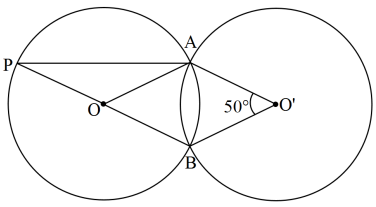


(A) 10º (B) 20º (C) 15º (D) 5º

46. In the given figure, $\triangle ABC$ and $\triangle DBC$ are inscribed in a circle such that $\angle BAC = 60^\circ$ and $\angle DBC = 50^\circ$. Then $\angle BCD = ?$

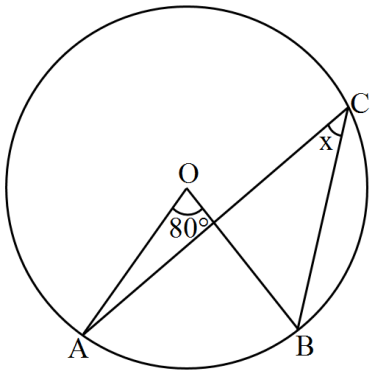
(A) 50° (B) 60° (C) 70° (D) 80°

47. The given figure shows two congruent circles with centre O and O' intersecting at A and B. If $\angle AO'B = 50^\circ$, then the measure of $\angle APB$ is:



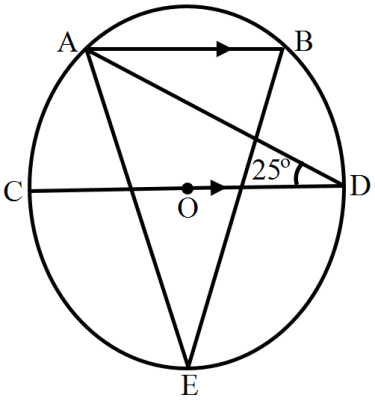
(A) 25º (B) 50º (C) 45º (D) 40º

48. In the figure, O is the centre of eh circle and $\angle AOB = 80^\circ$. The value of x is:



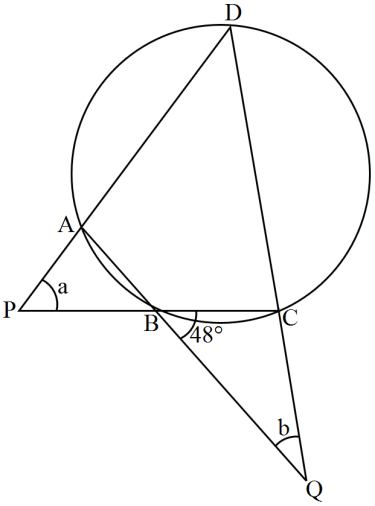
(A) 40º (B) 30º (C) 160º (D) 60º

49. In the given figure, AB || CD and O is the centre of the circle. If $\angle ADC = 25^\circ$, then the measure of $\angle AEB$ is:



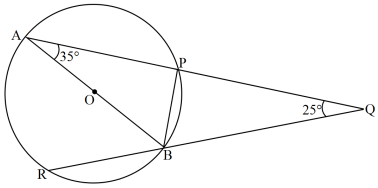
(A) 40º (B) 80º (C) 25º (D) 80º

50. In the given figure, ABCD is a cyclic quadrilateral, $\angle CBQ = 48^\circ$ and a = 2b. Then, b is equal to:



(A) 48º (B) 28º (C) 38º (D) 18º

51. In the given figure, AB is a diameter of the circle APBR. APQ and RBQ are straight lines. If $\angle A = 35^\circ$ and then the measure of $\angle PBR$ is:

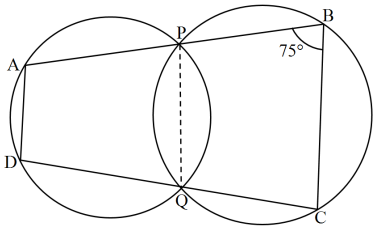


(A) 135º (B) 155º (C) 165º (D) 115º

52. In the given figure, O is the centre of a circle and $\angle AOC = 120^\circ$. Then, $\angle BDC = ?$

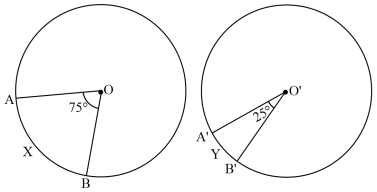
(A) 60° (B) 45° (C) 30° (D) 15°

53. The given figure shows two intersecting circles. If $\angle ABC = 75^\circ$ then the measure of $\angle PAD$ is:



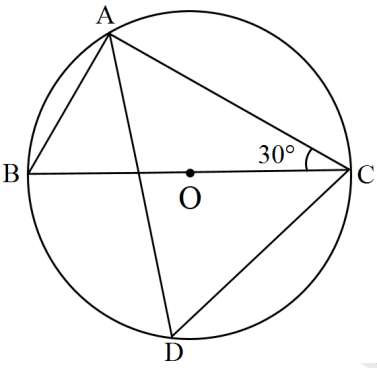
(A) 105º (B) 150º (C) 125º (D) 75º

54. The given figures show two congruent circles with centre O and O'. Arc AXB subtends an angle of 75º at the centre and arc A'YB' subtends an angle of 25º at the centre O'. Then, the ratio of arcs AXB to A 'YB' is:



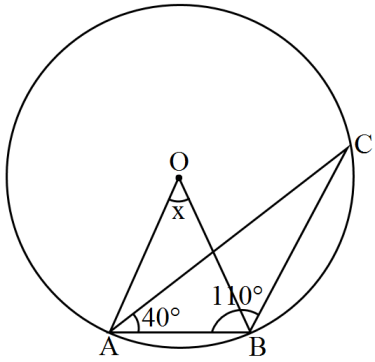
(A) It is 2 : 1 (B) It is 3 : 1 (C) It is 1 : 3 (D) It is 1 : 2

55. In the given figure, BOC is a diameter of a circle with centre O. If $\angle BCA = 30^\circ$, then $\angle CDA = ?$



(A) 50º (B) 45º (C) 30º (D) 60º

56. In the given figure, O is the centre of the circle. If $\angle CAB = 40^\circ$ and $\angle CBA = 110^\circ$, the value of x is:

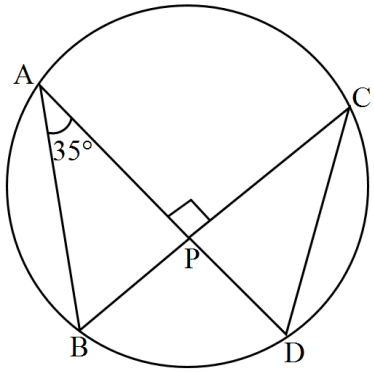


(A) 55º (B) 80º (C) 60º (D) 50º

57. In the given figure, O is the centre of a circle and $\angle \mathrm{OAB} = 50^\circ$. Then, $\angle \mathrm{CDA} = ?$

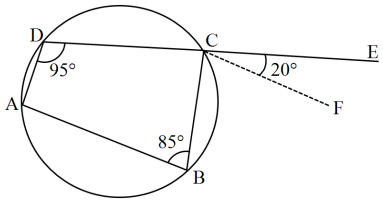
(A) 40° (B) 50° (C) 75° (D) 25°

58. In a given figure, chords AD and BC intersect each other at right angles at point P. If $\angle \mathrm{DAB} = 35^\circ$, then $\angle \mathrm{ADC} =$



(A) 65º (B) 35º (C) 55º (D) 45º

59. In the given figure, ABCD is a cyclic quadrilateral in which DC is produced to E and CF is drawn parallel to AB such that $\angle \mathrm{ADC} = 95^\circ$ and $\angle \mathrm{ECF} = 20^\circ$. Then, $\angle \mathrm{BAD} = ?$



(A) 95º (B) 85º (C) 75º (D) 105º

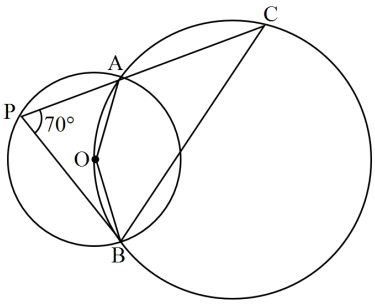
60. In the given figure, O is the centre of a circle in which $\angle \mathrm{OBA} = 20^\circ$ and $\angle \mathrm{OCA} = 30^\circ$. Then, $\angle \mathrm{BOC} = ?$

(A) 50° (B) 90° (C) 100° (D) 130°

61. In the given figure, ABCD and ABEF are two cyclic quadrilaterals. If $\angle \mathrm{BCD} = 110^\circ$ then $\angle \mathrm{BEF} = ?$

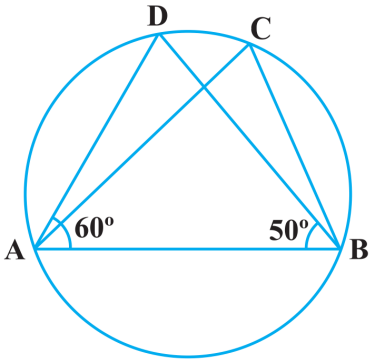
(A) 55° (B) 70° (C) 90° (D) 110°

62. The figure shows two circles which intersect at A and B. The centre of the smaller circle is O and it lies on the circumference of the larger circle. If $\angle \mathrm{APB} = 70^\circ$, then the measure of $\angle \mathrm{ACB}$ is:



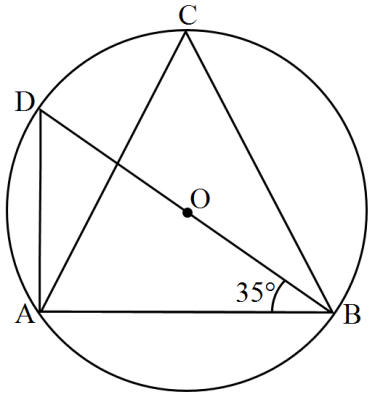
(A) 40º (B) 50º (C) 60º (D) 70º

63. Write the correct answer in the following:
In Fig. if $\angle DAB = 60^\circ, \angle ABD = 50^\circ$, then $\angle ACB$ is equal to:



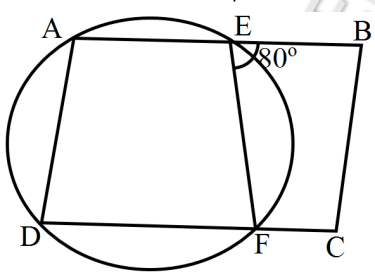
(A) 60°. (B) 50°. (C) 70°. (D) 80°.

64. In the given figure, O is the centre of the circle. If $\angle DBA = 35^\circ$, then the measure of $\angle ACB$ is equal to:



(A) 60º (B) 55º (C) 65º (D) 45º

65. ABCD is a parallelogram. A circle passes through A and D and cuts AB at E and DC at F. If $\angle BEF = 80^\circ$, then $\angle ABC$ is equal to:



(A) 80º (B) 75º (C) 120º (D) 100º

66. In the given figure, ABCD is a cyclic quadrilateral in which DC is produced to E and CF is drawn parallel to AB such that $\angle ADC = 95^\circ$ and $\angle ECF = 20^\circ$. Then, $\angle EAD = ?$

(A) 95° (B) 85° (C) 105° (D) 75°

67. In a circle of radius 17cm, two parallel chords are drawn on opposite side of a diameter. The distance between the chords is 23cm. If the length of one chord is 16cm, then the length of the other is:

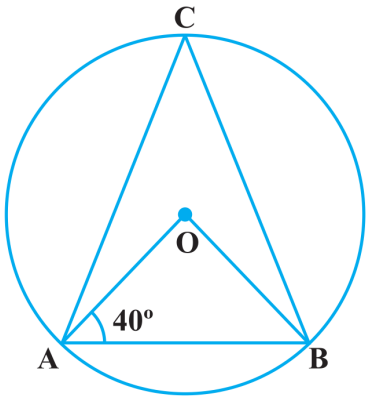
(A) 34cm. (B) 15cm. (C) 23cm. (D) 30cm.

68. In the give figure, AB and CD are two intersecting chords of a circle. If $\angle CAB = 40^\circ$ and $\angle BCD = 80^\circ$ then $\angle CBD = ?$

(A) 80° (B) 60° (C) 50° (D) 70°

69. Write the correct answer in the following:

In Fig. if $\angle OAB = 40^\circ$, then $\angle ACB$ is equal to:

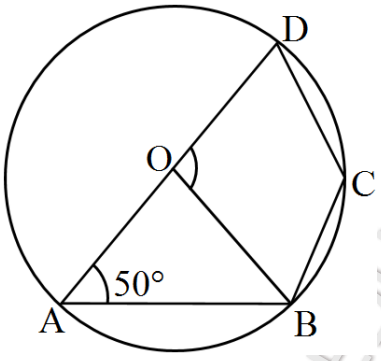


(A) 50°. (B) 40°. (C) 60°. (D) 70°.

70. Greatest chord of a circle is called its:

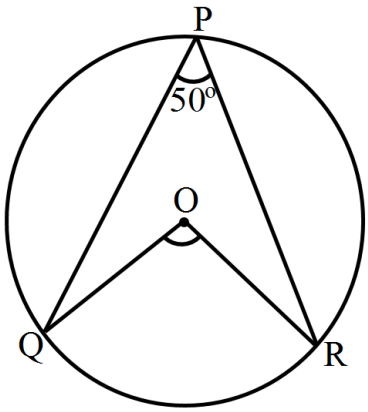
(A) Chord (B) Diameter (C) Secant (D) Radius

71. In the given figure, O is the centre of a circle and $\angle OAB = 50^\circ$. Then, $\angle BOD = ?$



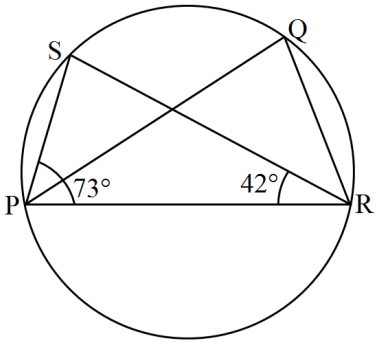
(A) 80º (B) 100º (C) 130º (D) 50º

72. In the given figure, O is the centre of the circle. If $\angle QPR$ is 50º, then $\angle QOR$ is:



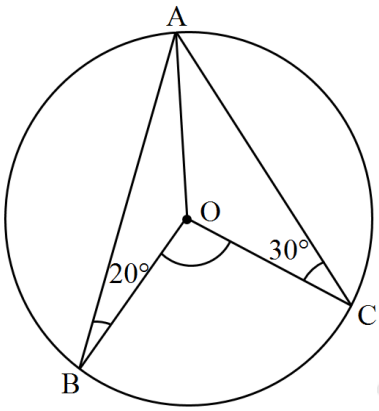
(A) 100º (B) 130º (C) 40º (D) 50º

73. In the figure, if $\angle \mathrm{SPR} = 73^\circ, \angle \mathrm{SRP} = 42^\circ$ then $\angle \mathrm{PQR}$ is equal to:



(A) 74º (B) 76º (C) 65º (D) 70º

74. In the given figure, O is the centre of a circle in which $\angle \mathrm{OBA} = 20^\circ$ and $\angle \mathrm{OCA} = 30^\circ$. Then, $\angle \mathrm{BOC} = ?$

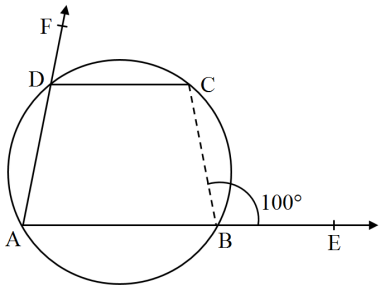


(A) 130º (B) 90º (C) 50º (D) 100º

75. In the given figure, AOB is a diameter and ABCD is a cyclic quadrilateral. If $\angle \mathrm{ADC} = 120^\circ$ then $\angle \mathrm{BAC} = ?$

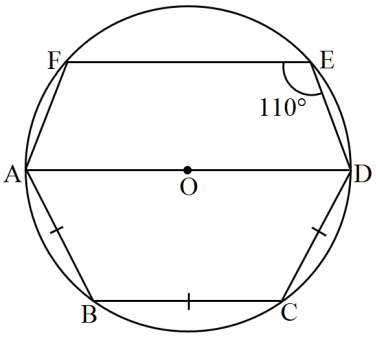
(A) 60° (B) 30° (C) 20° (D) 45°

76. In the given figure, sides AB and AD of quad. ABCD are produced to E and F respectively. If $\angle \mathrm{CBE} = 100^\circ$, then $\angle \mathrm{CDE} = ?$



(A) 130º (B) 100º (C) 80º (D) 90º

77. In the given figure, AD is a diameter of the circle with centre O. Chords AB, BC and CD are equal. If $\angle \mathrm{DEF} = 110^\circ$, then $\angle \mathrm{FAB}$ is equal to:

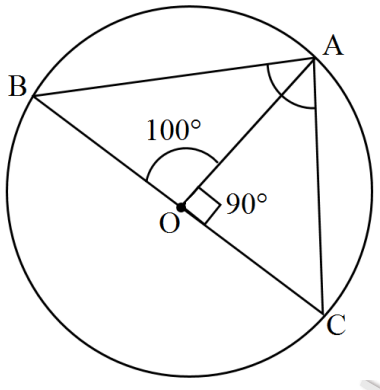


(A) 130º (B) 110º (C) 140º (D) 120º

78. If ABC is an arc of a circle and $\angle \mathrm{ABC} = 135^\circ$, then the ratio of arc ABC^ to the circumference, is:

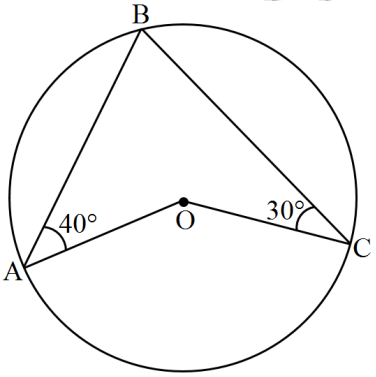
(A) 1 : 4 (B) 1 : 2 (C) 3 : 8 (D) 3 : 4

79. In the given figure, O is the centre of a circle. If $\angle \mathrm{AOB} = 100^\circ$ and $\angle \mathrm{AOC} = 90^\circ$, then $\angle \mathrm{BAC} = ?$



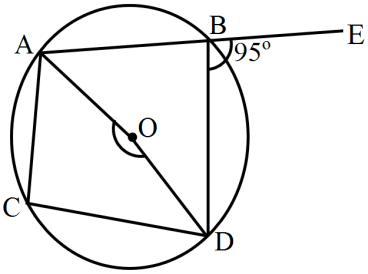
(A) 95º (B) 85º (C) 75º (D) 80º

80. In the given figure, O is the centre of the circle. $\angle \mathrm{OAB}$ and $\angle \mathrm{OCB}$ are 40º and 30º respectively. Then, the measure of $\angle \mathrm{AOC}$ is:



(A) 120º (B) 170º (C) 110º (D) 140º

81. In the given figure, O is the centre of the circle ABE is a straight line. If $\angle \mathrm{DBE} = 95^\circ$, then $\angle \mathrm{AOD}$ is equal to:

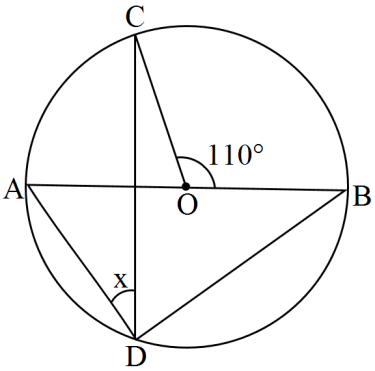


(A) 170º (B) 180º (C) 190º (D) 175º

82. In the given figure, $\angle \mathrm{AOB} = 90^\circ$ and $\angle \mathrm{ABC} = 30^\circ$. Then, $\angle \mathrm{CAO} = ?$

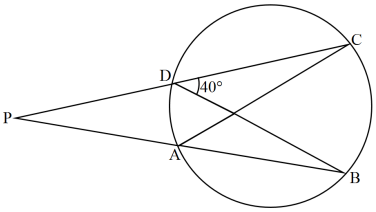
(A) 30° (B) 45° (C) 60° (D) 90°

83. The value of x in the given figure is:



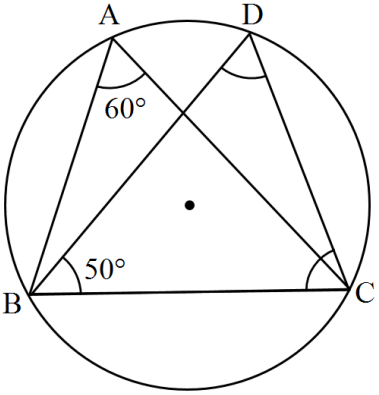
(A) 30º (B) 45º (C) 35º (D) 25º

84. In the given figure, if $\angle \mathrm{CDB} = 40^\circ$, then the measure of $\angle \mathrm{PAC}$ is:



(A) 120º (B) 140º (C) 160º (D) 100º

85. In the given figure, $\triangle \mathrm{ABC}$ and $\triangle \mathrm{DBC}$ are inscribed in a circle such that $\angle \mathrm{BAC} = 60^\circ$ and $\angle \mathrm{DBC} = 50^\circ$. Then, $\angle \mathrm{BCD} = ?$

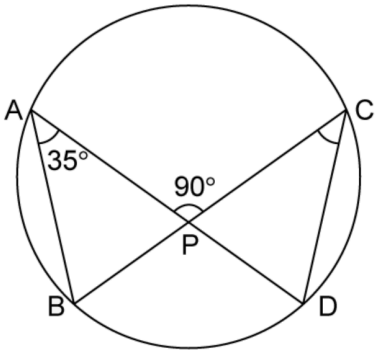


(A) 60º (B) 50º (C) 80º (D) 70º

86. In the given figure, AOB is a diameter of a circle and CD || AB. If $\angle \mathrm{BAD} = 30^\circ$ then $\angle \mathrm{CAD} = ?$

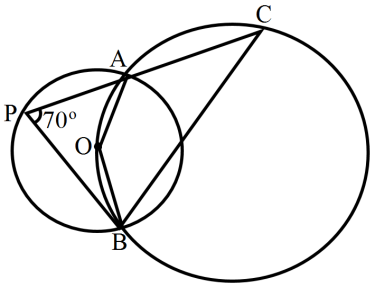
(A) 30° (B) 60° (C) 45° (D) 50°

87. In the given figure, chords AD and BC intersect each other at right angles at a point P. If $\angle \mathrm{DAB} = 35^\circ$, then $\angle \mathrm{ADC} =$



(A) 35° (B) 45° (C) 55° (D) 65°

88. The figure shows two circles which intersect at A and B. The centre of the smaller circle is O and it lies on the circumference of the larger circle. If $\angle \mathrm{APB} = 70^\circ$, then the measure of $\angle \mathrm{AGB}$ is:

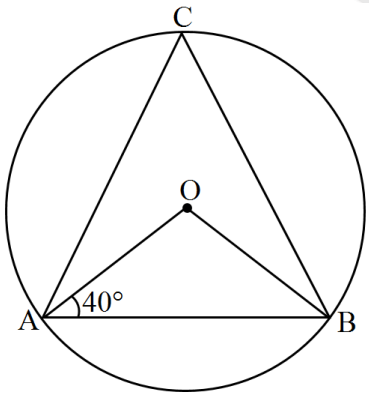


(A) 40º (B) 50º (C) 70º (D) 50º

89. An equilateral triangle ABC is inscribed in a circle with centre O. The measures of $\angle \mathrm{BOC}$ is:

(A) 60º (B) 90º (C) 30º (D) 120º

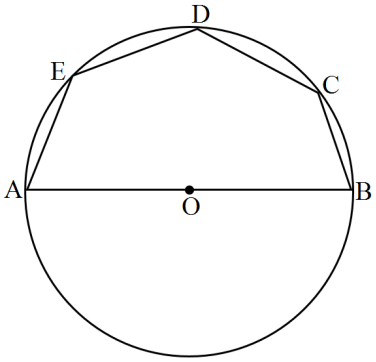
90. In the figure, O is the center of the circle. If $\angle \mathrm{OAB} = 40^\circ$, then $\angle \mathrm{ACB}$ is equal to:



(A) 60º (B) 70º (C) 40º (D) 50º

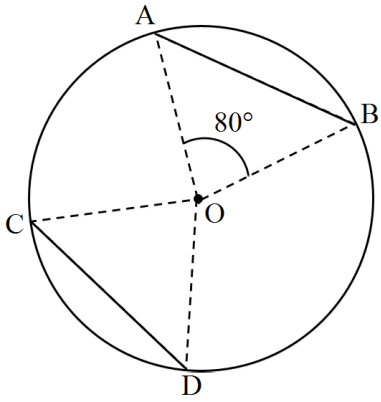
91.

AOB is a diameter of the circle and C, D, E are any three points on the semicircle. Then $\angle AED + \angle BCD$ is equal to:



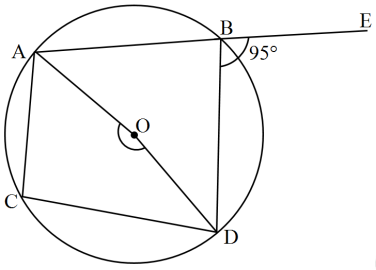
(A) 260º (B) 280º (C) 250º (D) 270º

92. AB and CD are two equal chords of a circle with centre O such that $\angle AOB = 80^\circ$, then $\angle COD = ?$



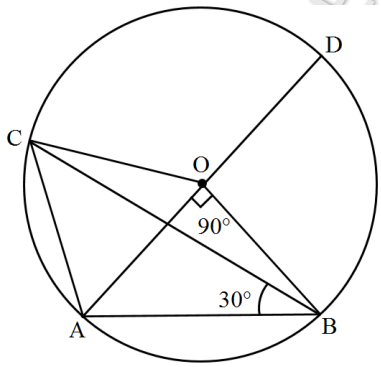
(A) 100º (B) 80º (C) 120º (D) 40º

93. In the given figure, O is the centre of the circle ABE is a straight line. if $\angle DBE = 95^\circ$ then $\angle AOD$ is equal to:



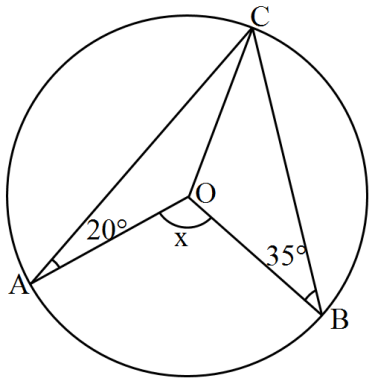
(A) 170º (B) 175º (C) 180º (D) 190º

94. In the given figure, $\angle AOB = 90^\circ$ and $\angle ABC = 30^\circ$. Then, $\angle CAO = ?$



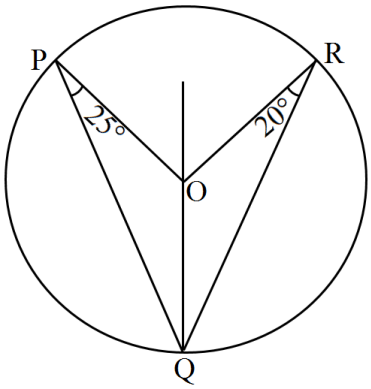
(A) 45º (B) 90º (C) 30º (D) 60º

95. In the given figure, a circle is centred at O. The value of x is:



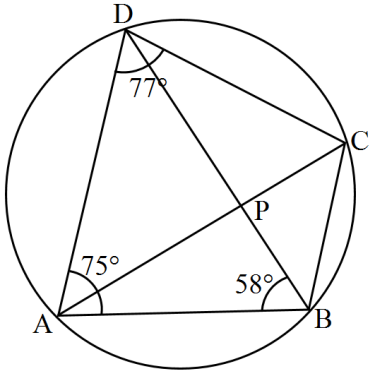
(A) 70º (B) 110º (C) 125º (D) 55º

96. In the figure, O is the centre of the circle. If $\angle \mathrm{OPQ} = 25^\circ$ and $\angle \mathrm{ORQ} = 20^\circ$, then the measures of $\angle \mathrm{POR}$ and $\angle \mathrm{PQR}$ are respectively:



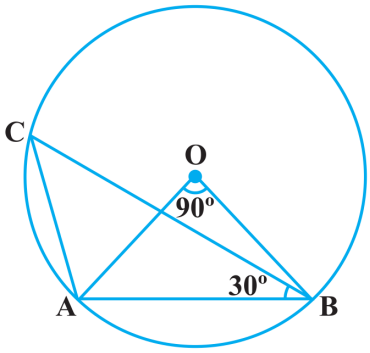
(A) 90º, 45º (B) 60º, 30º (C) 120º, 60º (D) None of these.

97. In the given figure, ABCD is a cyclic quadrilateral in which $\angle \mathrm{BAD} = 75^\circ$, $\angle \mathrm{ABD} = 58^\circ$ and $\angle \mathrm{ADC} = 77^\circ$, AC and BD intersect at P. The measure of $\angle \mathrm{DPC}$ is:



(A) 94º (B) 105º (C) 92º (D) 90º

98. Write the correct answer in the following:
In Fig. $\angle \mathrm{AOB} = 90^\circ$ and $\angle \mathrm{ABC} = 30^\circ$, then $\angle \mathrm{CAO}$ is equal to:



(A) 30°. (B) 45°. (C) 90°. (D) 60°.

99. PS and RS are two chord's of a circle such that PQ = 10cm and RS = 24cm and PQ || RS. The distance between PQ and RS is 17cm. Find the radius of circle.

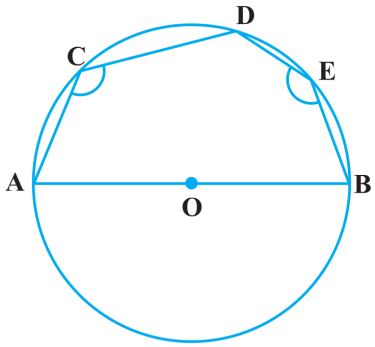
(A) 13cm (B) 15cm (C) None of these. (D) 10cm

100. In the given figure, AB is a chord of a circle with centre O and AB is produced to C such that BC = OB. Also, CO is joined and produced to meet the circle in D. If $\angle \mathrm{ACD} = 25^\circ$, then $\angle \mathrm{AOD} = ?$

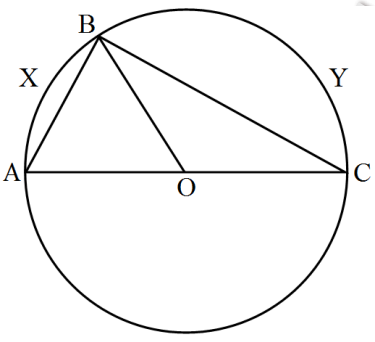
(A) 50° (B) 75° (C) 90° (D) 100°

*** Answer the following questions. [3 Marks Each]** **[33]**

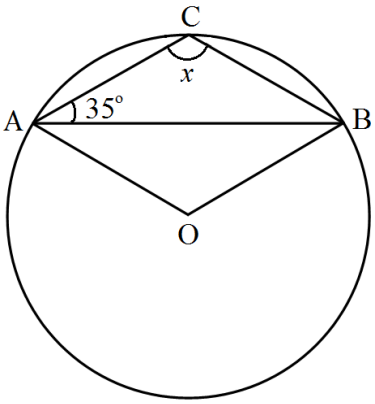
101. In Fig. AOB is a diameter of the circle and C, D, E are any three points on the semi-circle. Find the value of $\angle \mathrm{ACD} + \angle \mathrm{BED}$.



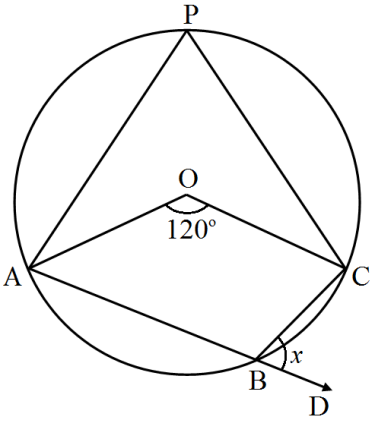
102. If the given figure, AOC is a diameter of the circle and arc $\mathrm{AXB} = \frac{1}{2}$ arc BYC. Find $\angle \mathrm{BOC}$.



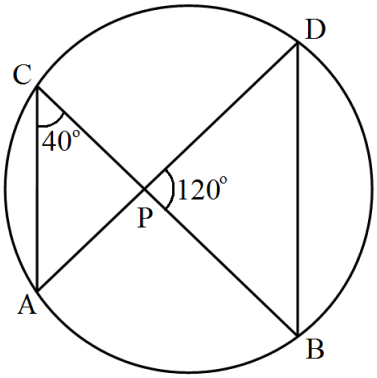
103. If O is the centre of the circle, find the value of x in the following figure:



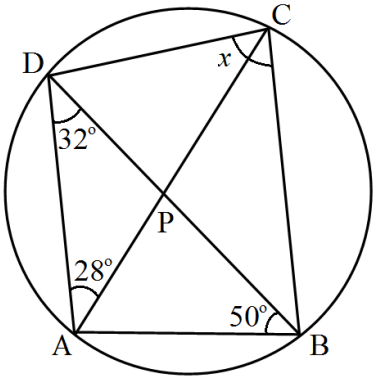
104. If O is the centre of the circle, find the value of x in the following figure:



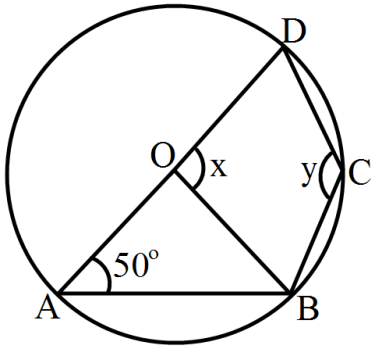
105. In figure, if $\angle \mathrm{ACB} = 40^\circ$, $\angle \mathrm{DPB} = 120^\circ$, find $\angle \mathrm{CBD}$.



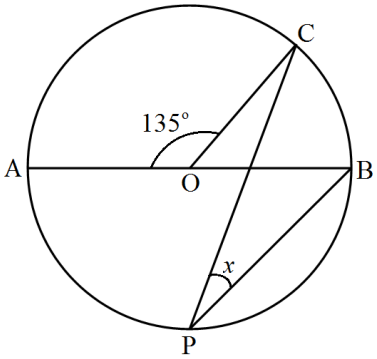
106. If O is the centre of the circle, find the value of x in the following figure:



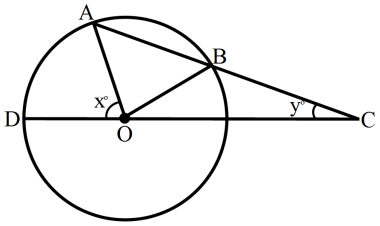
107. In the given figure, O is the center of the circle and $\angle \mathrm{DAB} = 50^\circ$. Calculate the values of x and y.



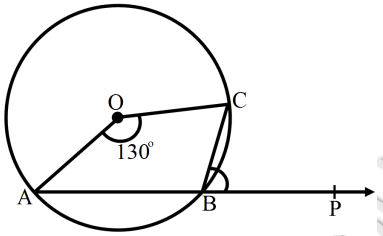
108. If O is the centre of the circle, find the value of x in the following figures:



109. In the given figure, AB is a chord of a circle with centre O and AB is produced to C such that BC = OB. Also, CO is joined and produced to meet the circle in D. If $\angle \mathrm{ACD} = \mathrm{y}^\circ$ and $\angle \mathrm{AOD} = \mathrm{x}^\circ$, prove that x = 3y.



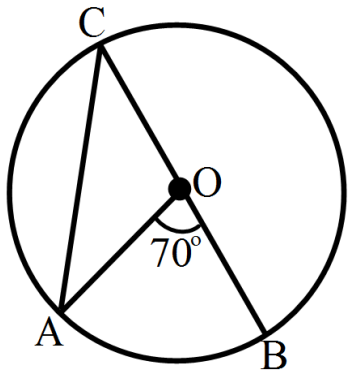
110. In the given figure, O is the centre of the circle and arc ABC subtends an angle of 130° at the centre. If AB is extended to P, find $\angle \mathrm{PBC}$.



111. In the given figure, O is the canter of the circle and $\angle \mathrm{AOB} = 70^\circ$. Calculate the values of

i. $\angle \mathrm{OCA}$

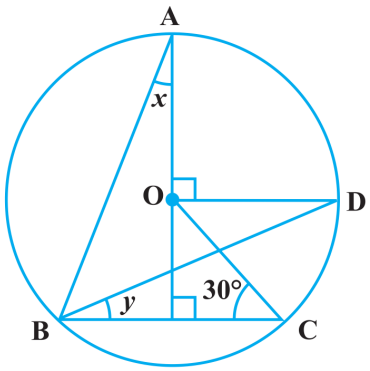
ii. $\angle \mathrm{OAC}$



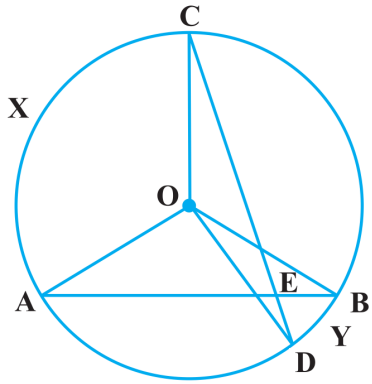
*** Questions with calculation. [4 Marks Each]** **[12]**

112. AB and AC are two chords of a circle of radius r such that AB = 2AC. If p and q are the distances of AB and AC from the centre, prove that $4q^2 = p^2 + 3r^2$.

113. In Fig. O is the centre of the circle, $\angle BCO = 30^\circ$. Find x and y.



114. In Fig. AB and CD are two chords of a circle intersecting each other at point E. Prove that $\angle AEC = \frac{1}{2}$ (Angle subtended by arc CXA at centre + angle subtended by arc DYB at the centre).

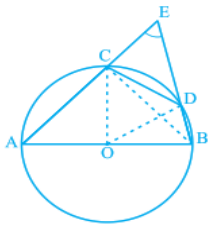


*** Answer the following questions. [5 Marks Each]** **[65]**

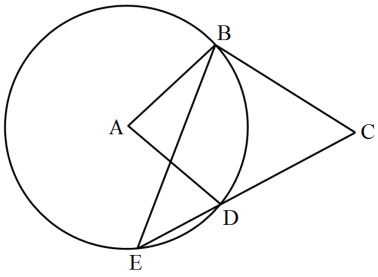
115. Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5 m drawn in a park. Reshma throws a ball to Salma. Salma to Mandip, Mandip to Reshma. If the distance between Reshma and Salma and between Salma and Mandip is 6 m each, what is the distance between Reshma and Mandip?

116. The circular park of radius 20 m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk each other. Find the length of the string of each phone.

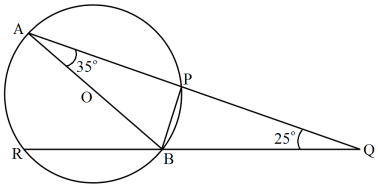
117. In given figure, AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at point E. Prove that ∠AEB = 60°.



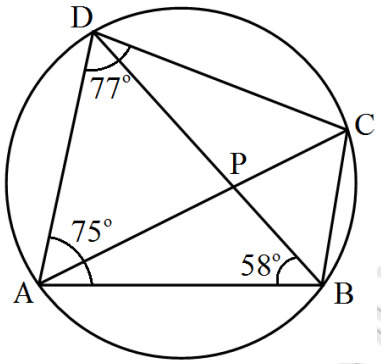
118. In the given figure, A is the centre of the circle. ABCD is a parallelogram and CDE is a straight line. Find $\angle BCD : \angle ABE$.



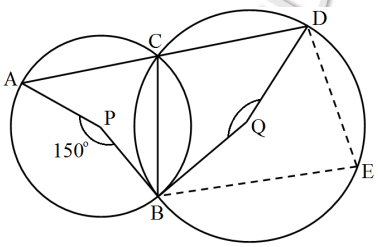
119. In the given figure, AB is a diameter of the circle such that $\angle A = 35^\circ$ and $\angle Q = 25^\circ$, find $\angle PBR$.



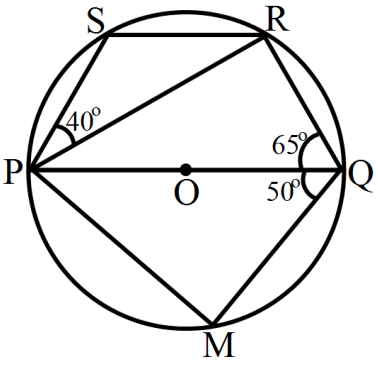
120. In the given figure, ABCD is a cyclic quadrilateral in which $\angle BAD = 75^\circ$, $\angle ABD = 58^\circ$ and $\angle ADC = 77^\circ$, AC and BD intersect at P. Then, find $\angle DPC$.



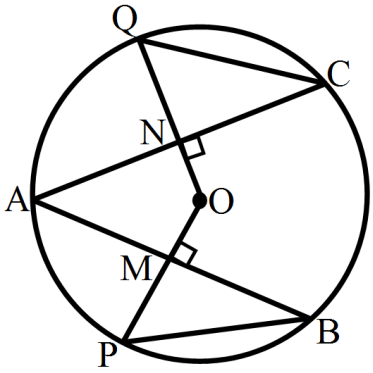
121. In the given figure, P and Q are centres of two circles intersecting at B and C. ACD is a straight line. Then, $\angle BQD =$



122. In the given figure, PQ is a diameter of a circle with centre O. If $\angle PQR = 65^\circ$, $\angle SPR = 40^\circ$ and $\angle PQM = 65^\circ$, find $\angle QPR$, $\angle QPM$ and $\angle PRS$.

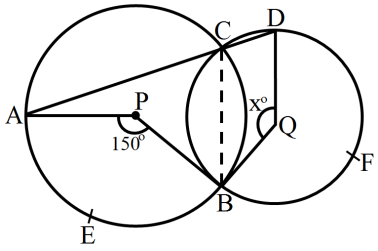


123. In the adjoining figure, O is the centre of a circle. If AB and AC are chords of the circle such that AB = AC, $\mathrm{OP} \perp \mathrm{AB}$ and $\mathrm{OQ} \perp \mathrm{AC}$,
prove that PB = QC.



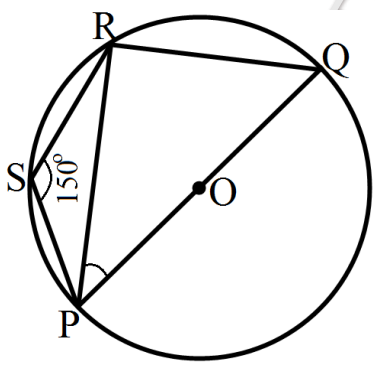
124. ABCD is a quadrilateral such that A is the centre of the circle passing through B, C and D. Prove that $\angle \mathrm{CBD} + \angle \mathrm{CDB} = \frac{1}{2} \angle \mathrm{BAD}$.

125. In the figure given below, P and Q are centres of two circles, intersecting at B and C, and ACD is a straight line.



If $\angle \mathrm{APB} = 150^\circ$ and $\angle \mathrm{BQD} = \mathrm{x}^\circ$, find the value of x.

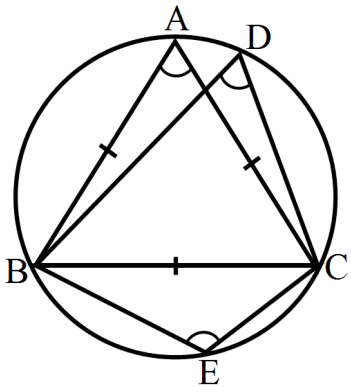
126. In the given figure, POQ is a diameter and PQRS is a cyclic quadrilateral. If $\angle \mathrm{PSR} = 150^\circ$, find $\angle \mathrm{RPQ}$.



127. In the given figure, $\triangle \mathrm{ABC}$ is equilateral. Find

i. $\angle \mathrm{BDC}$

ii. $\angle BEC$



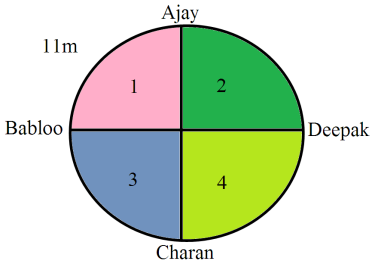
*** Case study based questions.** **[20]**

128. Read the Source/ Text given below and answer any four questions:

Four students of class IX B with names Ajay, Babloo, Charan and Deepak are playing a game in a circular playground.

All four students are holding radios with speaker and mic. These radios are connected by a wire of equal length that is 11m (for each radio). Ajay Asks a question to Babloo. If Babloo gives the correct answer he gets 10 points and asks a new question to Charan, If he can not answer then he passes the same question to Charan and gets no points.

These conditions apply to all four players. After 10 rounds who gets maximum points, he becomes the winner.



i. What is the radius of the field?
   a. 7m
   b. 14m
   c. 11m
   d. 22m

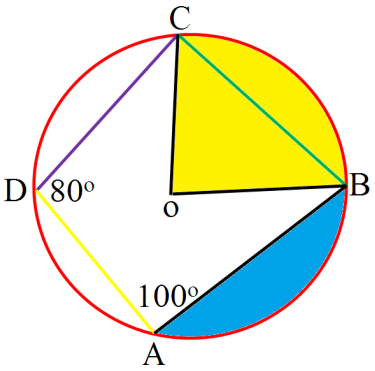
ii. What is the area of the field?
   a. $70m^2$
   b. $154m^2$
   c. $110m^2$
   d. $220m^2$

iii. What is the area of the part marked with 1 on the field?
   a. $50m^2$
   b. $154m^2$
   c. $76m^2$
   d. $38.5m^2$

iv. What is the circumference of the field?
   a. 22m
   b. 14m
   c. 44m
   d. 28m

v. What is the direct distance from Ajay to Charan?
   a. 7m
   b. 28m
   c. 15m
   d. 14m

129. Read the Source/ Text given below and answer these questions:



There was a circular park in Defence colony At Delhi. For fencing purpose Poles A, B, C and D were installed at the circumference of the park. Ram tied wires From A to B to C and C to D, He managed to measure the $\angle A = 100^\circ$ and $\angle D = 80^\circ$ The point O in the middle of the park is the center of the circle.

Now answer the following questions:

i. What is the value of $\angle B$?
   a. 80°
   b. 100°
   c. 90°
   d. 70°

ii. What is the value of $\angle C$?
   a. 80°
   b. 100°
   c. 90°
   d. 70°

iii. What is the special type of quadrilateral ABCD?
   a. Square.
   b. Rectangle.
   c. Cyclic quadrilateral.
   d. Trapezium.

iv. What is the property of cyclic quadrilateral?
   a. Opposite angles are supplementary.
   b. Adjacent angles are equal.
   c. Opposite angles are equal.
   d. Adjacent angles are complementary.

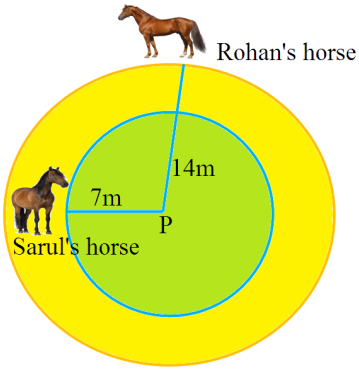
v. What you will call the yellow shaded shape OBC?
   a. Segment.
   b. Arc.
   c. Chord.
   d. Sector.

130. Read the Source/ Text given below and answer any four questions:

Rohan and Suraj were close friends, One day they were riding horses from Delhi to Faridabad. The names of their horses were Saku and Fareed respectively. The day was very sunny. On the way, they stopped for resting in a park. They tied their horses to a

tree in the park. The length of ropes of Rohans's horse is 14m and that of the horse of Suraj is 7m as shown in the figures.

Both the friends slept in the park under a green tree for some time. During this period both the horses took 10 rounds along with the tree they were tied.



Answer the following questions

i. The ratio of distance walked in 10 rounds by the horses of Rohan and Suraj is:
   a. 2 : 1
   b. 1 : 2
   c. 3 : 1
   d. 1 : 3

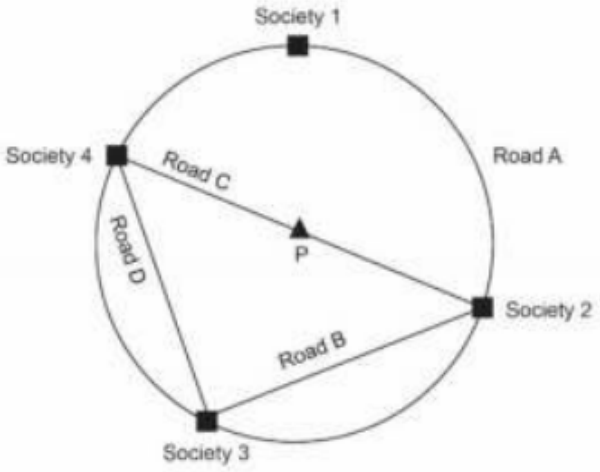
ii. The ratio of area of the grass the horses of Rohan and Suraj could graze:
   a. 2 : 1
   b. 1 : 2
   c. 4 : 1
   d. 1 : 4

iii. What is the distance walked by Rohan's horse in 5 rounds:
   a. 220m
   b. 100m
   c. 440m
   d. 110m

iv. What we call the the length of rope in terms of circle?
   a. Diameter
   b. Radius
   c. Chord
   d. Tangent

v. What we call the the distance walked by a horse in one round?
   a. Area
   b. Radius
   c. Circumference
   d. diameter

131. Given below is the map giving the position of four housing societies in a township connected by a circular road A.



Society 2 and 3 are connected by straight road B, society 4 and 2 are connected by straight road C and society 4 and 3 are connected by road D. Point P denotes the position of a park. The park is equidistant to all four societies.

Rubina claims that it is not possible to construct another circular road connecting all four societies.

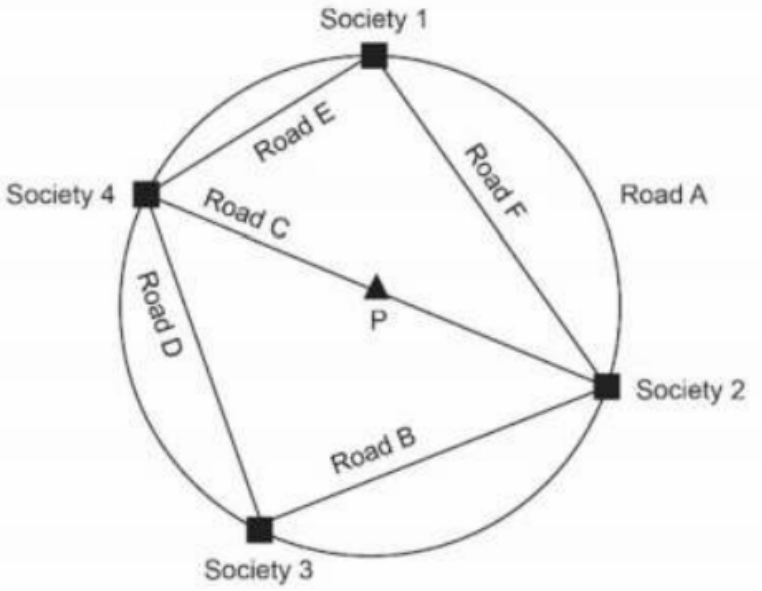
1. Which of the following options justiies Rubina's claim?
   A. Equal chords of congruent circles subtend equal angles at the centre.
   B. The perpendicular from the centre of a circle to a chord bisects the chord.
   C. There is a unique circle passing through three non-collinear points.
   D. Points equidistant from a given point will lie on a circle.

2 What is the position of the park P with respect to road A?
   A. Chord
   B. Centre
   C. Sector
   D. Segment

3. The length of Road B is equal to the length of Road D.
Which of the following options can be true for the roads in the township?
   A. Road B bisects Road D.
   B. Road B and Road make an acute angle.
   C. Road B, Road C and Road D are of equal length.
   D. Road B and Road D subtend equal angles at society 1.

4. Alex says, "The angle made by road B on road D is a right angle."
Jai and Angad give different justiications to support Alex's claim.
Jai says, "Angles in the same segment of a circle are equal."
Angad says, "The angle in a semicircle is a right angle."
Who has given the correct justiication?

132. Two new roads, Road E and Road F were constructed between society 4 and 1 and society 1 and 2.



5. What would be the measure of the sum of angles formed by the straight roads at society 1 and society 3?

A. 60°
B. 90°
C. 180°
D. 360°

6. Krish says, “The distance to go from society 4 to society 2 using Road D will be longer that the distance using Road E”
Is Krish correct? Justify your answer with examples.

7. Road G, perpendicular to Road F was constructed to connect the park and Road F. Which of the following is true for Road G and Road F?

A. Road G and road F are of same length.
B. Road F divides Road G into two equal parts.
C. Road G divides Road F into two equal parts.
D. The length of road G is one-fourth of the length of Road F.

8. Priya said, “Minor arc corresponding to Road B is congruent to minor arc corresponding to Road D.”
Do you agree with Priya? Give reason to support your answer.

----- "Our greatest glory is not in never falling, but in rising every time we fall." -----