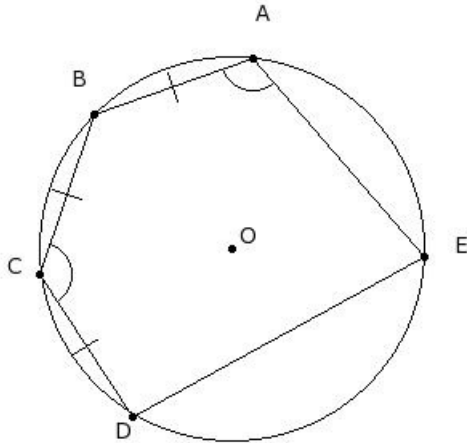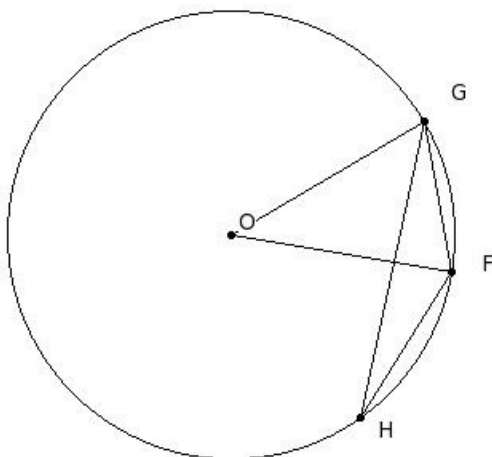1. In the given figure, a pentagon is inscribed in a circle with centre O. Given AB = BC = CD , ∠BCD = 104° and ∠EAB = 111°. Find ∠EAD

 (i) 45° (ii) 35° (iii) 65° (iv) 40° (v) 50°

2. In the given figure, FG is a side of regular 8-sided polygon and FH is a side of regular 9-sided polygon inscribed in a circle with centre O. Find ∠FOG

 (i) 55° (ii) 45° (iii) 60° (iv) 50° (v) 75°

3. In the given figure, JK is a side of regular 5-sided polygon and JL is a side of regular 6-sided polygon inscribed in a circle with centre O. Find ∠JLK
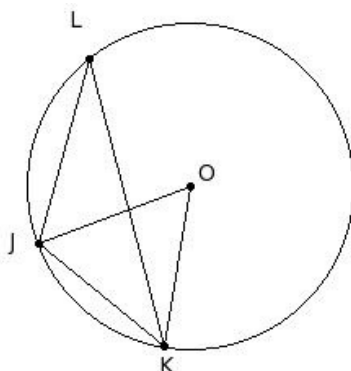
 (i) 41° (ii) 46° (iii) 66° (iv) 36° (v) 51°

4. In the given figure, BC is a side of regular 5-sided polygon and BD is a side of regular 10-sided polygon inscribed in a circle with centre O. Find ∠BCD

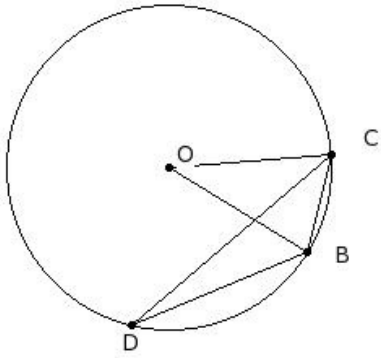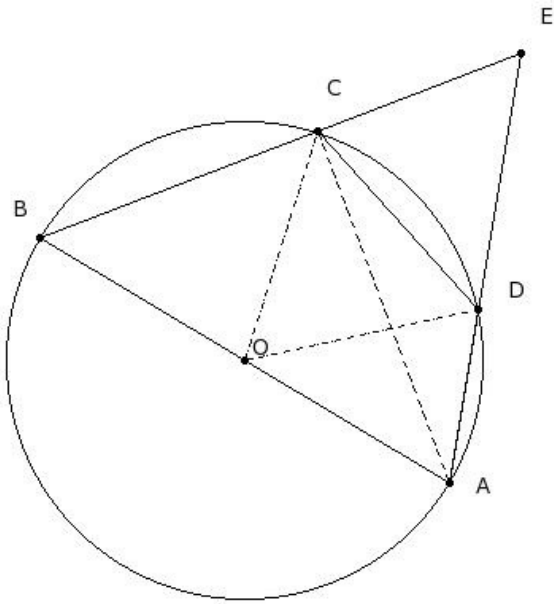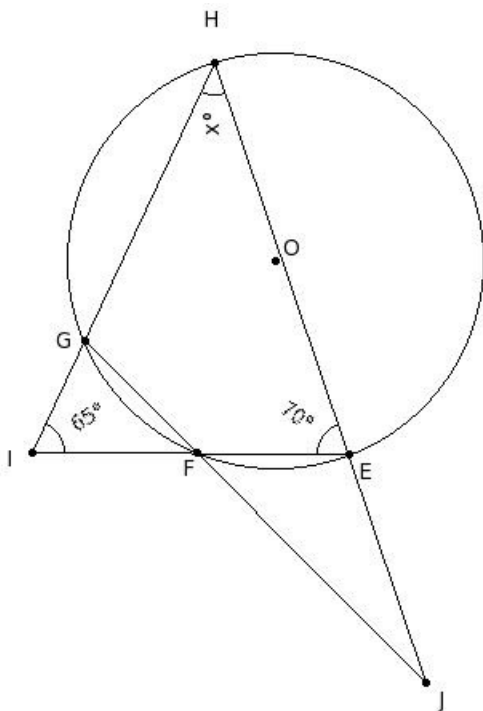(i) 18° (ii) 23° (iii) 48° (iv) 28° (v) 33°

5. In the given figure, O is the centre of the circle. AB is a diameter of the circle and CD is equal to radius. Find ∠AEB

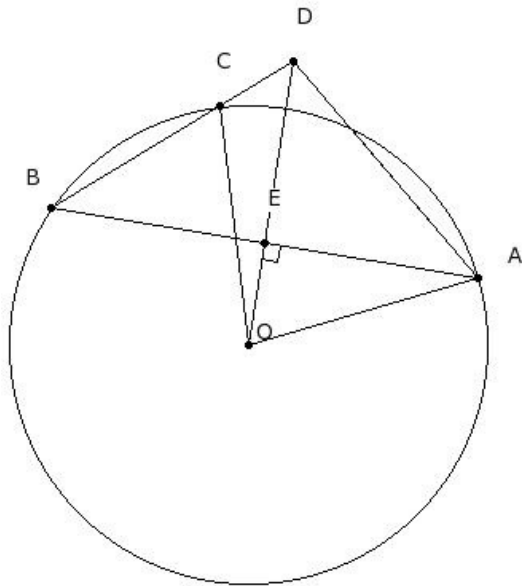(i) 90° (ii) 70° (iii) 60° (iv) 75° (v) 65°

6. In the given figure, O is the centre of the circle. If ∠FIG = 65° and ∠FEH = 70°, find ∠EHG

(i) 55° (ii) 75° (iii) 45° (iv) 60° (v) 50°

7. In the given figure, O is the centre of the circle, and OE ⊥ AB. If ∠ABC = 40.5°, find ∠AOC

(i) 96° (ii) 81° (iii) 111° (iv) 91° (v) 86°

8. In the given figure, O is the centre of the circle, and OH ⊥ DE. If ∠DEF = 49°, find ∠OGF
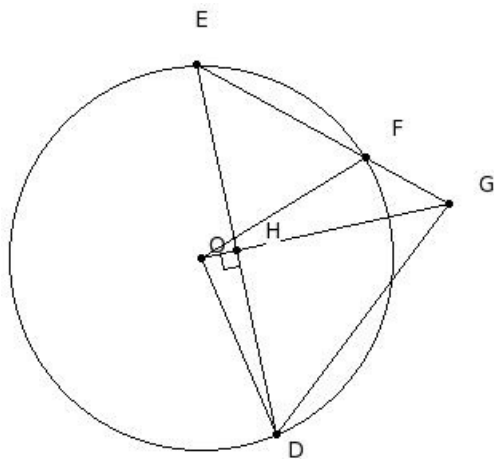
(i) 71° (ii) 41° (iii) 56° (iv) 51° (v) 46°

9. In the given figure, O is the centre of the circle. If ∠KIJ = 49.63° and ∠IJK = 61.54°, find the angle ∠ILJ
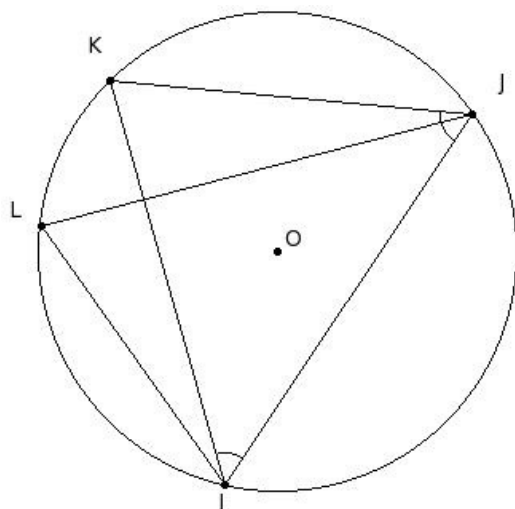
(i) 98.83° (ii) 68.83° (iii) 78.83° (iv) 73.83° (v) 83.83°

10. Which of the following statements are true?

    a) A chord divides a circle into two sectors.
    b) Atmost one chord can be drawn on a circle with a certain length.
    c) The diameter is the longest chord.
    d) A chord divides a circle into two segments.
    e) The radius is the shortest chord.

    (i) {b,d}   (ii) {b,d,c}   (iii) {c,d}   (iv) {e,a,c}   (v) {a,c}

11. Which of the following statements are true?

    a) The farther the chord is from the centre, the larger the angle it subtends at the centre.
    b) No two chords bisects each other.
    c) Equal length chords subtend equal angles at the centre of the circle.
    d) Equal length chords are equidistant from the centre of the circle.
    e) The longest chord of the circle passes through the centre of the circle.

    (i) {a,c}   (ii) {a,c,d}   (iii) {c,d,e}   (iv) {a,b,e}   (v) {b,d}

12. Which of the following statements are true?

    a) A circle divides the plane on which it lies into three parts.
    b) The area enclosed by a chord and its major arc is called major segment.
    c) The diameter divides the circle into two unequal parts.
    d) The area enclosed by a chord and its minor arc is called minor segment.
    e) A sector is the area enclosed by two radii and a chord.

    (i) {c,e,d}   (ii) {e,b}   (iii) {a,b,d}   (iv) {c,a,b}   (v) {c,a}

13. Which of the following statements are true?

    a) Two chords bisect each other.
    b) The diameter divides the circle into two unequal parts.
    c) The longest of all chords of a circle is called diameter.
    d) A sector is the area enclosed by two radii and a chord.
    e) The midpoint of any diameter of a circle is its centre.

    (i) {b,e,c}   (ii) {b,e}   (iii) {a,c}   (iv) {c,e}   (v) {d,a,c}

14. Which of the following statements are true?

    a) If a parallelogram is cyclic, it is a rectangle.
    b) If a kite is cyclic, it is a square.
    c) If a rhombus is cyclic, it is a square.
    d) If a trapezium is cyclic, it is a rectangle.
    e) A cyclic quadrilateral is a regular polygon.

    (i) {a,c}   (ii) {d,c}   (iii) {e,b,a}   (iv) {b,a}   (v) {d,c,a}

15. Which of the following statements are true?

    a) Atmost one circle can be drawn passing through three non-collinear points.
    b) Only one circle can be drawn passing through two points.
    c) Only one circle can be drawn with a centre.
    d) Infinite circles can be drawn passing through three collinear points.
    e) Exactly two tangents can be drawn parallel to a secant.

    (i) {d,b,a}   (ii) {c,e,a}   (iii) {c,e}   (iv) {b,a}   (v) {a,e}

16. Which of the following are cyclic quadrilaterals?

    a) triangle
    b) rhombus
    c) rectangle
    d) parallelogram
    e) square
    f) trapezium

    (i) {d,f,c} (ii) {c,e} (iii) {a,c} (iv) {a,e,c} (v) {b,e}

17. Which of the following statements are true?

    a) A diameter is a limiting case of a chord.
    b) A radius is a limiting case of a diameter.
    c) A secant and a chord are same.
    d) A tangent is the limiting case of a secant.
    e) A secant has two end points.

    (i) {e,b,a} (ii) {a,d} (iii) {c,d} (iv) {b,a} (v) {c,d,a}

18. Which of the following statements are true?

    a) If two circles touch externally, their centres and the point of contact form an isosceles triangle.
    b) If two circles touch internally, their centres and the point of contact form a scalene triangle.
    c) If two circles touch externally, the distance between their centres is the sum of their radii.
    d) If two circles touch externally, the square of the distance between their centres is the sum of the squares of their radii.
    e) If two circles touch internally, the distance between their centres is the difference of their radii.
    f) If two circles touch internally, the square of the distance between their centres is the difference of the squares of their radii.

    (i) {a,c} (ii) {a,e,c} (iii) {b,e} (iv) {c,e} (v) {d,f,c}

19. Which of the following statements are true?

    a) If a circle can be inscribed in a quadrilateral, the sum of the lengths of a pair of opposite sides is equal to the other pair.
    b) If a circle can be inscribed in a quadrilateral, then it must be a square.
    c) It is always possible to inscribe a circle in a quadrilateral.
    d) If a circle can be inscribed in a quadrilateral, it must be a kite.
    e) It is always possible to inscribe a circle in a regular polygon.

    (i) {c,e,a} (ii) {a,e} (iii) {c,e} (iv) {d,b,a} (v) {b,a}

20. Which of the following statements are true?

    a) Angles in the opposite segments are supplementary.
    b) Angles in the opposite segments are complementary.
    c) Angles in the same segment are equal.
    d) Angles subtended by equal length arcs in two circles are equal.

    (i) {d,c} (ii) {b,c,a} (iii) {b,d,a} (iv) {a,c} (v) {b,a}

21. The point of intersection of the angular bisectors of a triangle is

    (i) excentre (ii) orthocentre (iii) centroid (iv) circumcentre (v) incentre

22. If an arc subtends an angle of x° in its alternate segment, then the angle is subtends at the centre is

(i) 4x° (ii) 2x° (iii) x° (iv) $\dfrac{x°}{2}$

23. An arc subtends 90° in its alternate segment. The arc is

(i) minor segment (ii) major segment (iii) quadrant (iv) semi-circle (v) minor arc

24. An arc subtends 146° in its alternate segment. The arc is

(i) quadrant (ii) major segment (iii) minor arc (iv) minor segment (v) major arc

25. An arc subtends 42° in its alternate segment. The arc is

(i) minor segment (ii) quadrant (iii) semi-circle (iv) major arc (v) minor arc

26. An arc subtends 57° in its alternate segment. Its corresponding major arc subtends what angle in its (major arc) alternate segment?

(i) 128° (ii) 153° (iii) 123° (iv) 138° (v) 133°

27. An arc subtends 49° in its alternate segment. The angle made by its corresponding major arc at the centre is

(i) 262° (ii) 267° (iii) 277° (iv) 272° (v) 292°

28. In the given figure, two circles of radii HJ = 10.4 cm & IJ = 12.8 cm intersect at J & K. The distance between the centres HI = 20 cm, find the length of JK
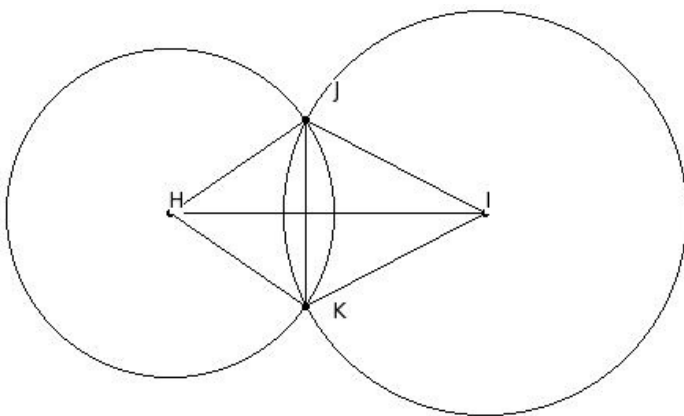
(i) 12.67 cm (ii) 9.67 cm (iii) 13.67 cm (iv) 10.67 cm (v) 11.67 cm

29. The angle subtended by the semicircle at the centre is

(i) 185° (ii) 195° (iii) 210° (iv) 180° (v) 190°

30. The angle subtended by the diameter at any point on the circle is

(i) 95° (ii) 100° (iii) 90° (iv) 105° (v) 120°

31. Angle subtended by the major arc at the centre is

(i) straight angle (ii) zero angle (iii) right angle (iv) obtuse angle (v) reflex angle

32. Angle subtended in the major segment is

(i) right angle (ii) complete angle (iii) obtuse angle (iv) acute angle (v) straight angle

33. The opposite angles in a cyclic quadrilateral are

(i) supplementary (ii) linear pair (iii) complementary (iv) equal

34. If the radius of the circumcircle is half the length of a side of the triangle, then the triangle is

   (i) acute angled triangle   (ii) right angle triangle   (iii) equilateral triangle   (iv) obtuse angled triangle

35. Circles having common centre are called

   (i) congruent circles   (ii) similar circles   (iii) concentric circles   (iv) intersecting circles

36. If two circles are concentric, then

   (i) their diameters are same   (ii) their radii are same   (iii) their centres are same

   (iv) their perimeters are same

37. In the given figure, CDEF is cyclic quadrilateral. If ∠DEF = 86°, find ∠BCF
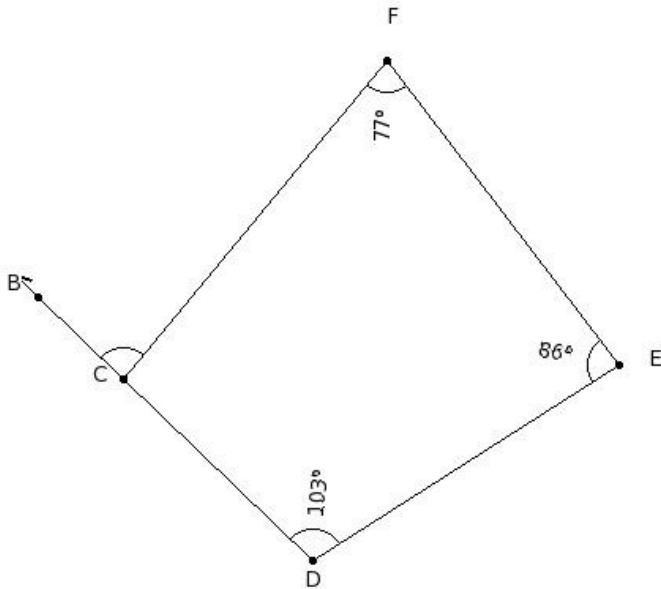
   (i) 116°   (ii) 86°   (iii) 91°   (iv) 101°   (v) 96°

38. In the given figure, IJ & KL are diameters of the circle. If ∠IJK = 61.5° find, ∠JOK
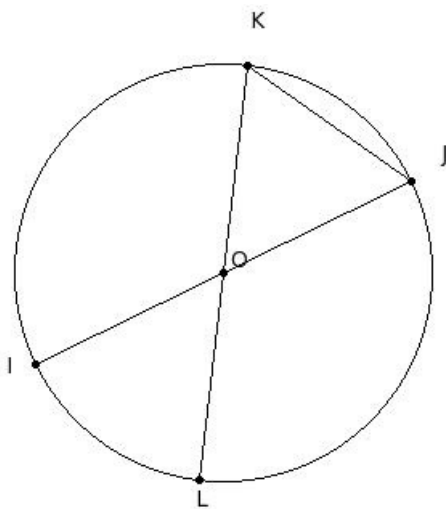
   (i) 67°   (ii) 62°   (iii) 57°   (iv) 87°   (v) 72°

39. In the given figure, AB & CD are diameters of the circle. If ∠ADC = 26°, find ∠OCB
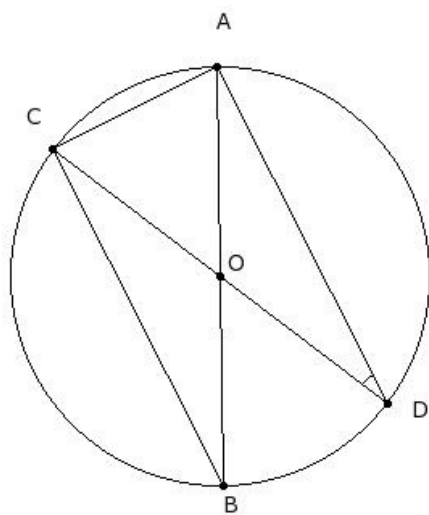
(i) 26° (ii) 31° (iii) 56° (iv) 41° (v) 36°

40. In the given figure HJ & IJ are equal length chords of the circle. Find ∠JHI
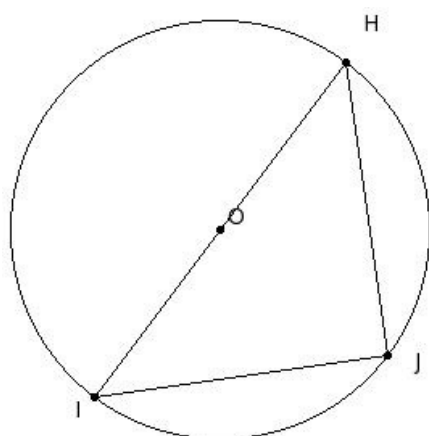
(i) 45° (ii) 60° (iii) 55° (iv) 50° (v) 75°

41. In the given figure, IJ is a diameter of the circle with centre O. If ∠JIK = 44.13° and JK = JL, find ∠LKI
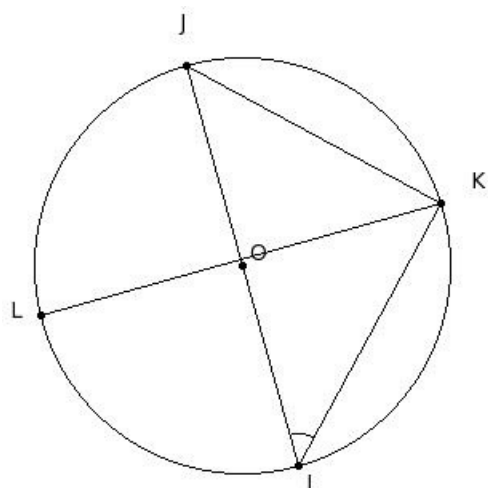
(i) 45.87° (ii) 55.87° (iii) 50.87° (iv) 75.87° (v) 60.87°

42. In the given figure, O is the centre of the circle. If ∠OFH = 34.5°, find ∠G
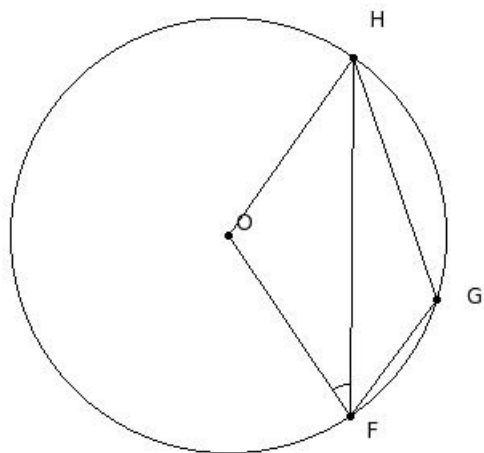
    (i) 124.5° (ii) 134.5° (iii) 154.5° (iv) 129.5° (v) 139.5°

43. In the given figure, O is the centre of the circle. If ∠FGH = 148°, find ∠OFH
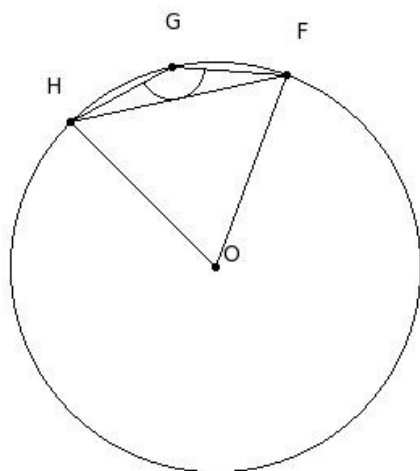
    (i) 58° (ii) 73° (iii) 68° (iv) 63° (v) 88°

44. In the given figure, O is the centre of the circle. If ∠GHO = 45° and ∠OJG = 11°, find ∠HIJ
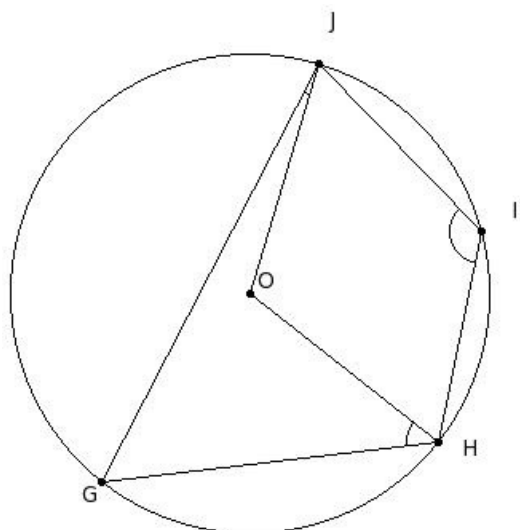
    (i) 154° (ii) 134° (iii) 129° (iv) 139° (v) 124°

45. In the given figure, O is the centre of the circle. If ∠CDO = 43° and ∠OFC = 18°, find ∠DOF
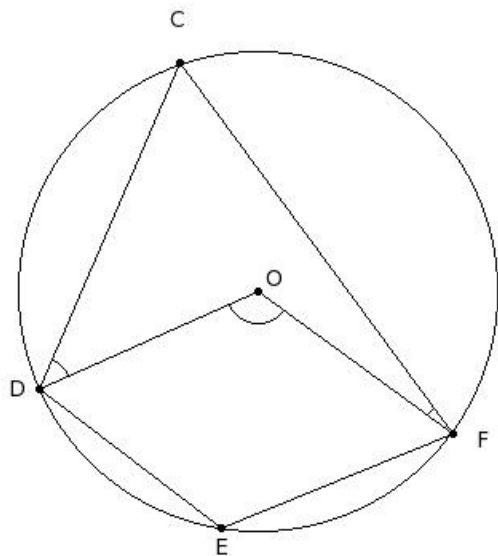
(i) 122° (ii) 152° (iii) 137° (iv) 132° (v) 127°

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46. In the given figure, GHIJ is a cyclic quadrilateral. If ∠GIH = 33° and ∠IJH = 45°, find ∠GHI
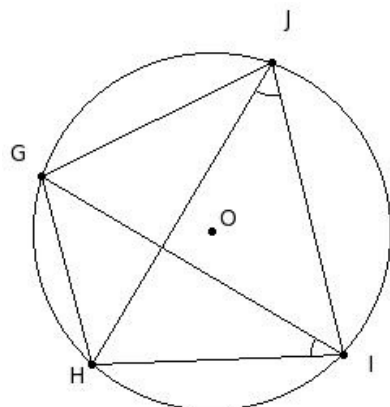
(i) 107° (ii) 112° (iii) 132° (iv) 102° (v) 117°

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47. In the given figure, CDEF is a cyclic quadrilateral. If ∠CED = 31° and ∠EFD = 33°, find ∠CFE
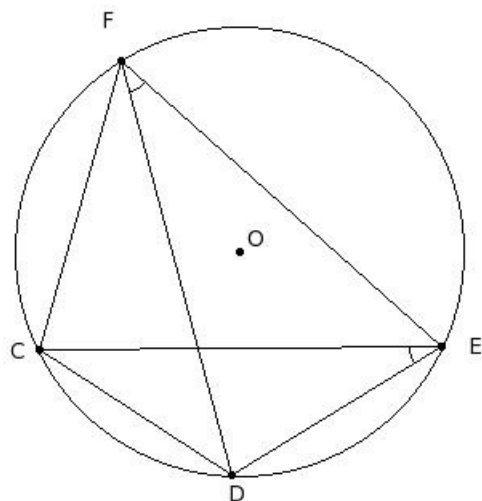
(i) 64° (ii) 79° (iii) 69° (iv) 74° (v) 94°

48. In the given figure, CDEFGH is a regular hexagon. Find ∠CED
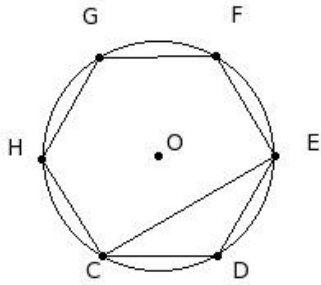
    (i) 45° (ii) 60° (iii) 30° (iv) 35° (v) 40°

49. In the given figure, DEFGHI is a regular hexagon. Find ∠DGF
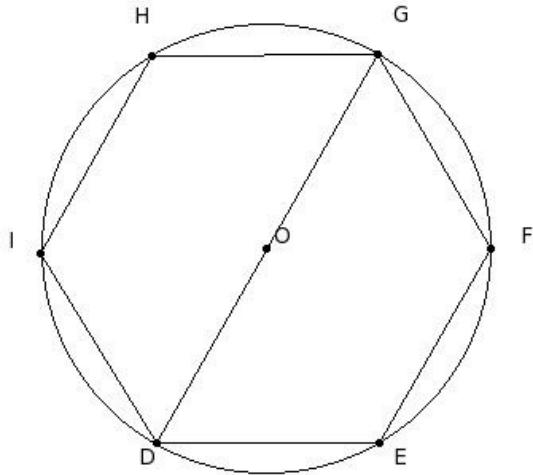
    (i) 65° (ii) 75° (iii) 70° (iv) 60° (v) 90°

50. With the vertices of a triangle △GHI as centres, three circles are drawn touching each other externally. If the sides of the triangle are 10 cm , 15 cm and 13 cm , find the radii of the circles
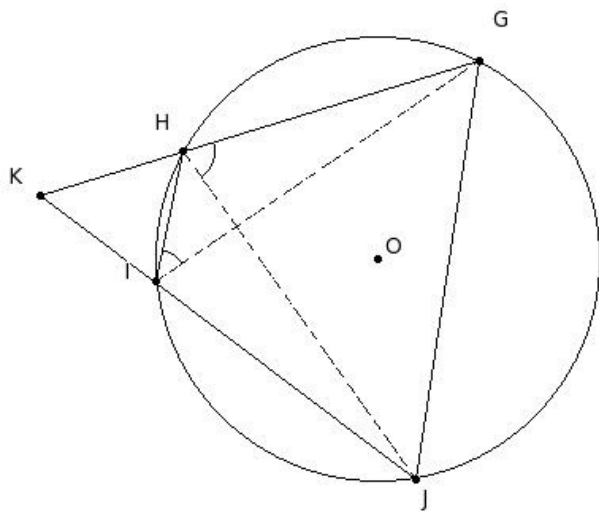
    (i) 9 cm , 11 cm & 14 cm respectively (ii) 9 cm , 6 cm & 9 cm respectively

    (iii) 4 cm , 6 cm & 9 cm respectively (iv) 4 cm , 11 cm & 9 cm respectively

    (v) 4 cm , 6 cm & 14 cm respectively

51. O is the centre of the circle. If ∠JKI = 51.5°, find the angle ∠OJI
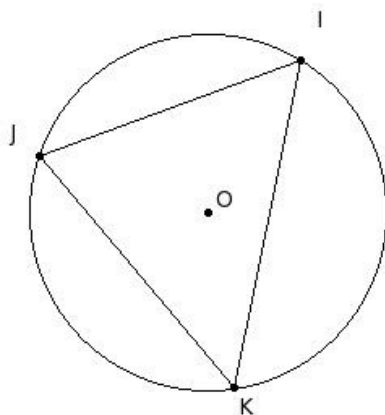
    (i) 53.5° (ii) 48.5° (iii) 43.5° (iv) 38.5° (v) 68.5°

52. In the given figure, GHIJ is a cyclic quadrilateral. If ∠GHJ = 72° and ∠HIG = 44°, find ∠JGH

(i) 74° (ii) 94° (iii) 79° (iv) 69° (v) 64°

53. HI is the perpendicular bisector of side FG of △EFG. Given ∠EFG = 81° and ∠HEG = 33° , find ∠EGF
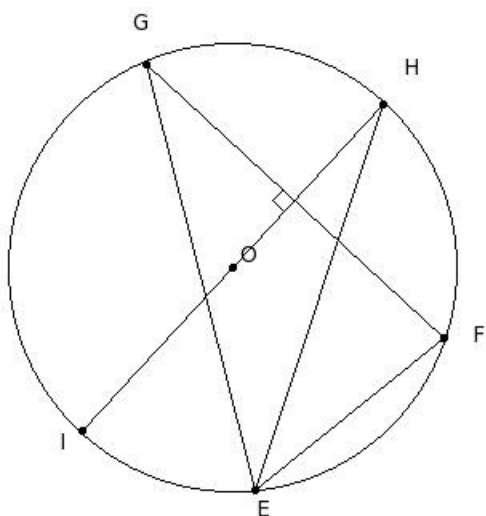
(i) 48° (ii) 33° (iii) 43° (iv) 63° (v) 38°

54. In the given figure, △EBC is a scalene triangle. DB bisects ∠EBC. Similarly CD bisects ∠BCE. Given ∠CEB = 86°, find ∠CDB
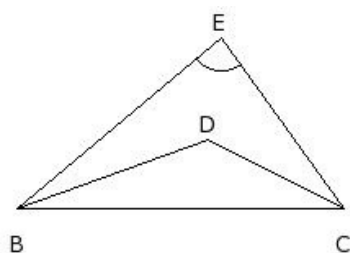
(i) 143° (ii) 138° (iii) 133° (iv) 163° (v) 148°

55. In the given figure, △EAB is a scalene triangle. CA & DA trisect ∠EAB. Similarly BC & BD trisect ∠ABE. Given ∠BEA = 93°, find ∠BCA
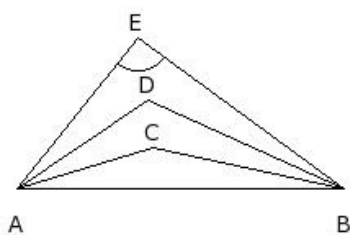
(i) 156° (ii) 166° (iii) 161° (iv) 151° (v) 181°

56. In the given figure, △KGH is a scalene triangle. IG & JG trisect ∠KGH. Similarly HI & HJ trisect ∠GHK. Given ∠HKG = 75°, find ∠HJG

K

J

I

G   H
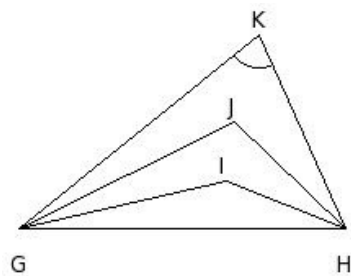
(i) 115° (ii) 110° (iii) 140° (iv) 125° (v) 120°

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57. In the given figure, ∠DFG = 15° and ∠DHG = 33°, find ∠FDG

E

O

D   F

G

H
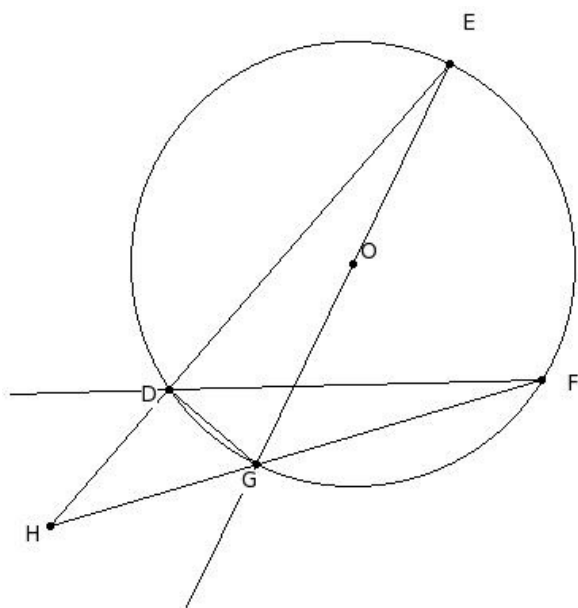
(i) 57° (ii) 42° (iii) 72° (iv) 47° (v) 52°

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58. In the given figure, ∠DFG = 13° and ∠DHG = 18°, find ∠EGD
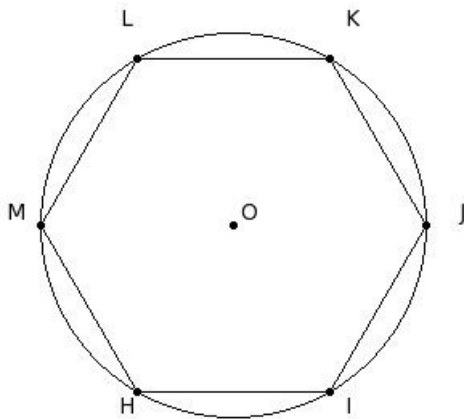
H

D

G

O

E

F
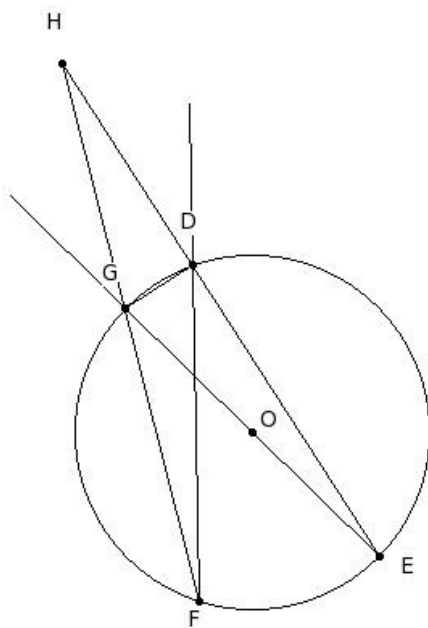
(i) 77° (ii) 92° (iii) 107° (iv) 82° (v) 87°

59. In the given figure, HI , IJ , JK and KL are chords and HK , IL are diameters passing through the centre O. If ∠HOI = 73°. Find ∠IJK
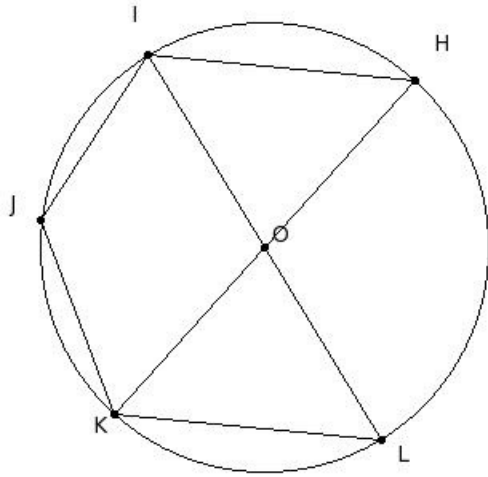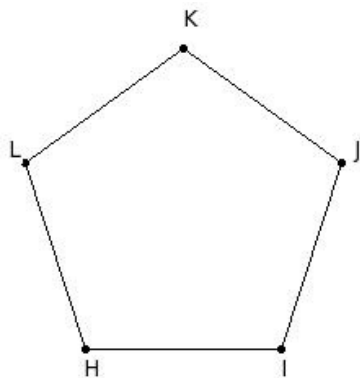

(i) 136.5° (ii) 141.5° (iii) 156.5° (iv) 131.5° (v) 126.5°

60. In the given figure, HIJKLM is a regular hexagon inscribed in a circle with centre O. Which of the following are true?

a) ∠HOM = 60°
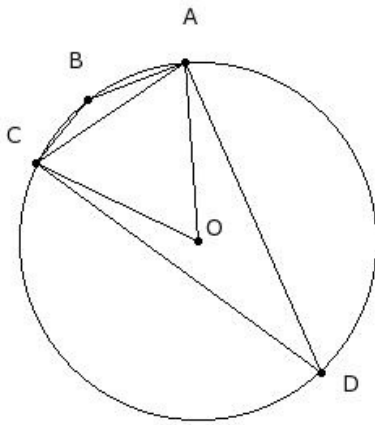b) ∠ILJ = 30°
c) ∠IOK = 120°
d) ∠MKJ = 90°
e) ∠HJI = 60°

(i) {e,c} (ii) {e,b} (iii) {e,d,a} (iv) {a,b,c,d} (v) {e,a}

61. In the given figure, HIJKL is a regular pentagon . Find ∠HLJ
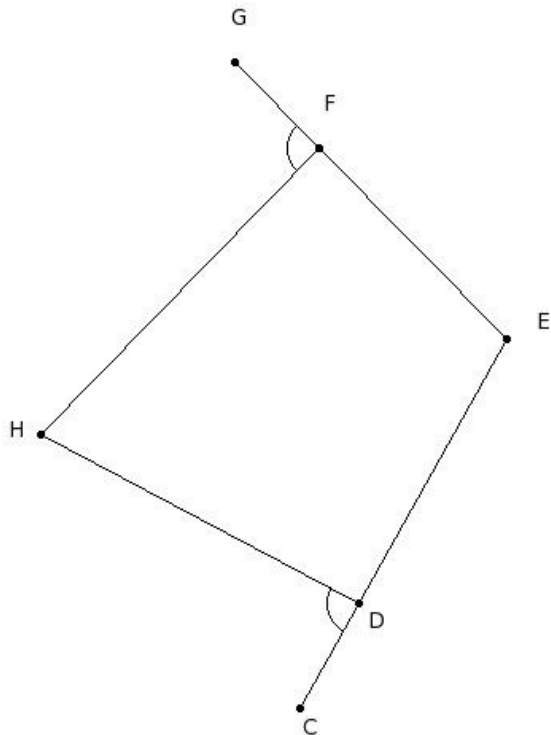

(i) 102° (ii) 82° (iii) 87° (iv) 77° (v) 72°

62. In the given figure, AC is a chord which is equal to the radius of the circle. Find ∠D and ∠B

   (i) 50° & 130° (ii) 40° & 140° (iii) 60° & 120° (iv) 30° & 150° (v) 45° & 135°

63. In the given figure, DEFH is a cyclic quadrilateral where EF and ED are produced to G and C respectively. If ∠CDH = 89°, find ∠GFH

   (i) 96° (ii) 91° (iii) 106° (iv) 121° (v) 101°

64. In the given figure, ∠I = 45° , ∠L = 63° and ∠M = 126°, find ∠LJK
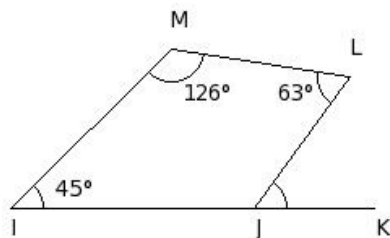
   (i) 59° (ii) 69° (iii) 64° (iv) 54° (v) 84°

65. Which of the following statements are true?

a) A cyclic parallelogram is a rectangle.
b) A cyclic kite is a square.
c) A cyclic parallelogram is a rhombus.
d) A cyclic rhombus is a square.
e) A cyclic trapezium is a rectangle.

 (i) {a,d} (ii) {c,d,a} (iii) {c,d} (iv) {e,b,a} (v) {b,a}

66. Which of the following statements are true?

a) The exterior angle of a quadrilateral and its interior opposite angle are supplementary.
b) Either pair of opposite angles of a cyclic quadrilateral are supplementary.
c) An isosceles trapezium is cyclic.
d) All parallelograms are cyclic.
e) A quadrilateral in which the diagonals are equal and bisect each other is cyclic.

 (i) {a,b,c} (ii) {d,c} (iii) {a,d,e} (iv) {a,b} (v) {b,c,e}

67. Which of the following are not cyclic quadrilaterals?

a) kite
b) square
c) isosceles trapezium
d) rhombus
e) rectangle

 (i) {c,d,a} (ii) {c,d} (iii) {e,b,a} (iv) {b,a} (v) {a,d}

68. Which of the following statements are true?

a) Angle subtended by the major arc at the centre is acute.
b) Angle subtended by the major arc in its alternate segment is obtuse.
c) If two chords are equal, then they are equidistant from the centre of the circle.
d) Angle subtended in the major segment is obtuse.
e) The angle subtended in a semicircle is a right angle.

 (i) {b,c,e} (ii) {d,c} (iii) {a,b} (iv) {a,d,e} (v) {a,b,c}

69. In triangle IJK, if a circle is drawn with JK as diameter and if it passes through I it is a

 (i) equilateral triangle (ii) obtuse angled triangle (iii) right angle triangle (iv) acute angled triangle

70. Which of the following statements are true?

a) All chords of a circle are diameters.
b) π is a rational number.
c) A circle divides the plane into three mutually disjoint sets of points.
d) $\frac{22}{7}$ is a rational number.
e) All diameters of a circle are chords.

 (i) {a,b,e} (ii) {b,d} (iii) {a,c,d} (iv) {a,c} (v) {c,d,e}

71. In the given figure, which of the following are true?

    a) $\angle H + \angle OIJ = 90°$

    b) $\angle H + \angle OJI = 90°$

    c) $\angle H + \angle IOJ = 180°$

    d) $\angle H + \angle OIJ + \angle OJI = 2\angle H$

    e) $\angle H + \angle OIJ = 120°$
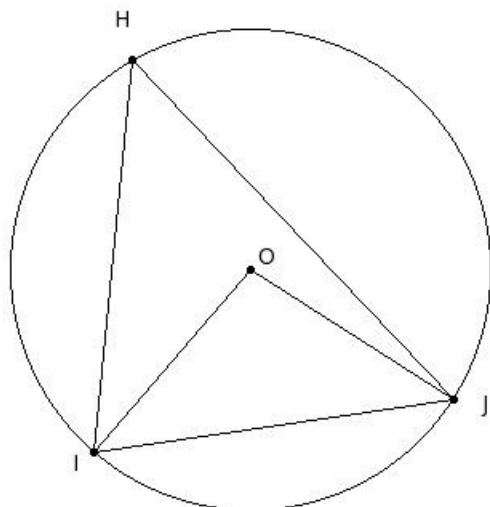
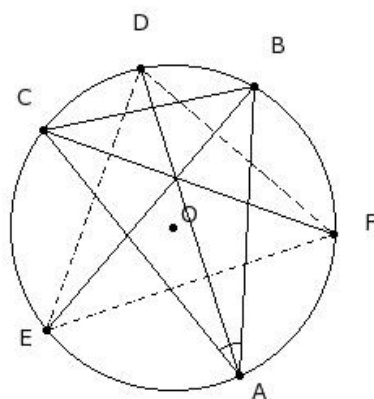   (i) {a,b} (ii) {d,b} (iii) {d,b,a} (iv) {c,a} (v) {e,c,a}

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72. If EFGH is a cyclic quadrilateral and $\angle E - \angle G = 8°$, then $\angle G$

    (i) 91° (ii) 86° (iii) 96° (iv) 116° (v) 101°

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73. If BCDE is a cyclic parallelogram, then $\angle E$

    (i) 120° (ii) 105° (iii) 100° (iv) 95° (v) 90°

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74. In the given figure, the bisectors of $\angle A$, $\angle B$ & $\angle C$ of $\triangle ABC$ meet the circumcircle at D , E & F. If $\angle A = 42°$, find $\angle D$


    (i) 99° (ii) 69° (iii) 84° (iv) 79° (v) 74°

75. BC is a line segment and E is its mid-point. Three semi-circles are drawn with BE , EC and BC as diameters. D , F and E respectively are the centres of these semi-circles. A new circle is drawn touching these three semi-circles. Find its radius, given BD = 6 cm
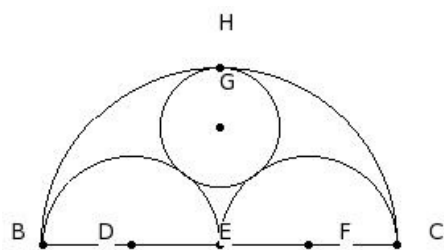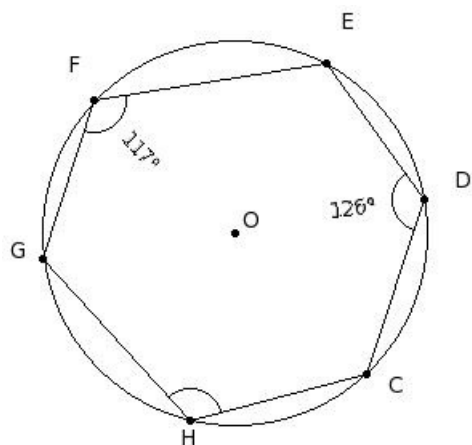

(i) 3.00 cm   (ii) 2.00 cm   (iii) 4.00 cm   (iv) 6.00 cm   (v) 5.00 cm

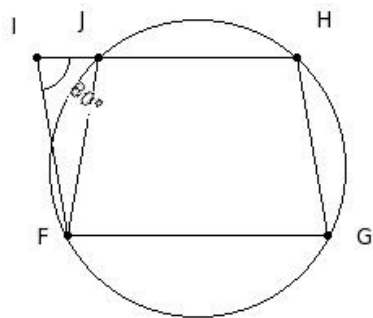76. In the given figure, which of the following angle pairs are equal?
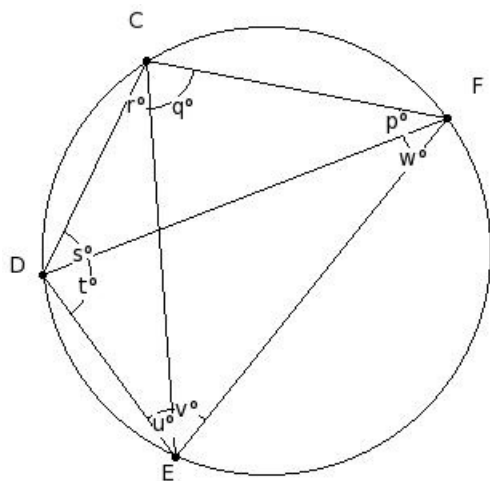
(i) {(p,u),(q,t),(r,w),(s,v)}   (ii) {(r,p),(w,v),(q,s),(u,t)}   (iii) {(v,u),(w,q),(p,s),(r,t)}   (iv) {(p,t),(w,s),(u,q),(r,v)}

(v) {(r,v),(w,u),(p,s),(t,q)}

77. CDEFGH is a hexagon inscribed in a circle. Given ∠CDE = 126° & ∠EFG = 117°, find ∠GHC

(i) 122° (ii) 132° (iii) 117° (iv) 147° (v) 127°

78. In the given figure, FGHI is a parallelogram. The circumcircle of △FGH cuts HI at J. Given ∠FIJ = 80°, find ∠IFJ

    (i) 50° (ii) 30° (iii) 25° (iv) 35° (v) 20°

79. In the given figure, IG and JF are two lines passing through the points of intersection of the two circles at H and E. If ∠JIH = 93° , find ∠HGF
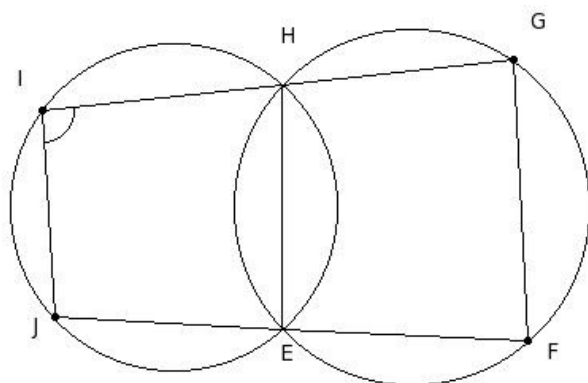
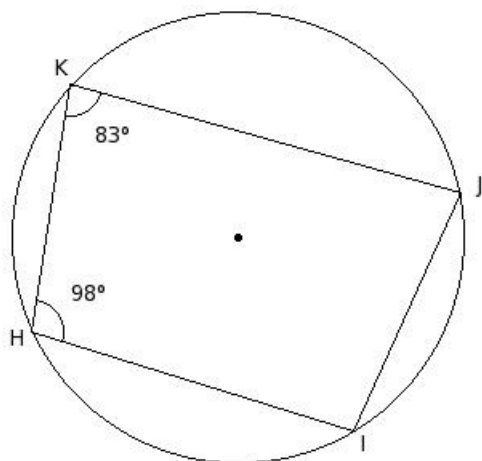   (i) 87° (ii) 97° (iii) 117° (iv) 92° (v) 102°

80. In the given figure, find the angles of the quadrilateral.
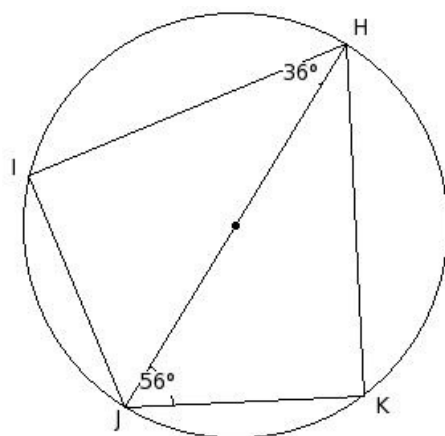
    (i) H=72°,I=90°,J=108°,K=90° (ii) H=69°,I=90°,J=111°,K=90° (iii) H=70°,I=90°,J=110°,K=90°

    (iv) H=68°,I=90°,J=112°,K=90° (v) H=71°,I=90°,J=109°,K=90°

81. In the given figure, find the remaining angles of the quadrilateral.

(i) I=98°,J=83° (ii) I=97°,J=82° (iii) I=99°,J=84° (iv) I=96°,J=81° (v) I=95°,J=80°

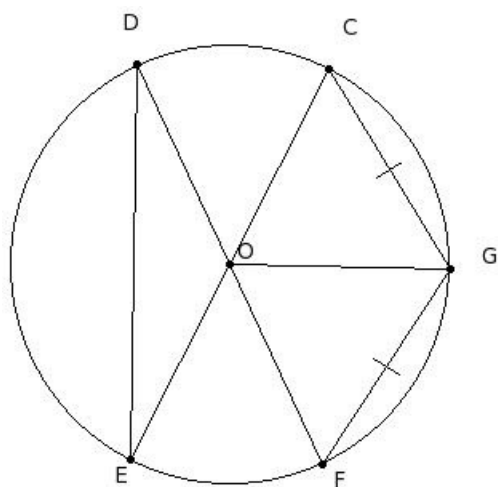82. Points which lie on the circumference of the circle are called

(i) Similar points (ii) Concurrent points (iii) Cyclic points (iv) Coincident points (v) Concyclic points

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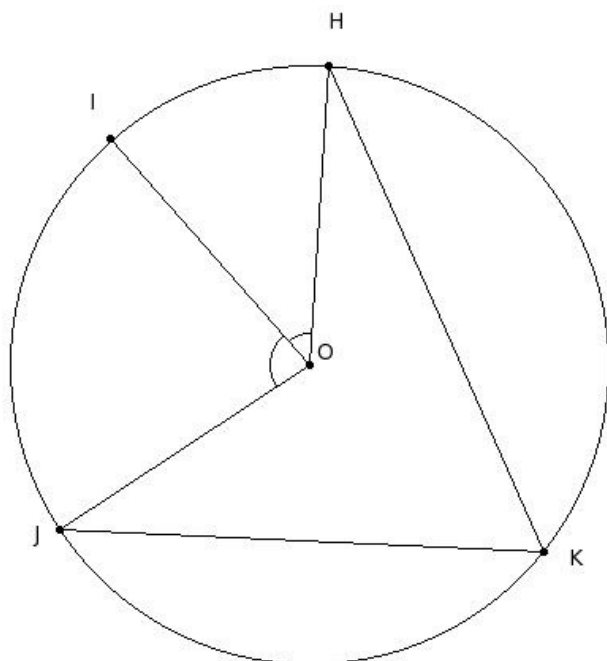83. In the given figure, DG & EF are two chords of equal length. Given ∠OEF = 44.5°, find ∠DOG
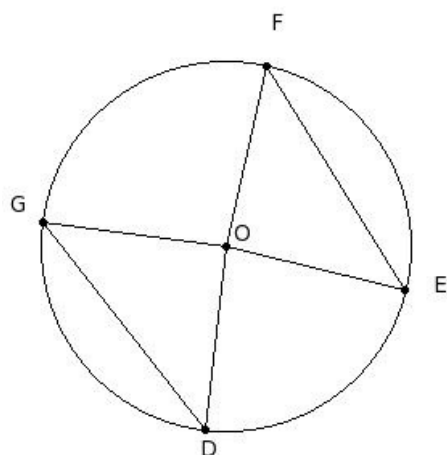
(i) 101° (ii) 91° (iii) 106° (iv) 121° (v) 96°

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84. In the given figure, FG & GC are equal length chords, CE and DF are diameters. Given ∠OFG = 58° find, ∠ODE

(i) 31° (ii) 41° (iii) 56° (iv) 36° (v) 26°

85. In the given figure, O is the centre of the circle. Given ∠IOJ = 82° & ∠HKJ = 63.5°, find ∠HOI

(i) 75° (ii) 55° (iii) 60° (iv) 45° (v) 50°

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86. In the given figure, chords BD & CE meet at F. Given x = 102° and y = 30°, find ∠CBD
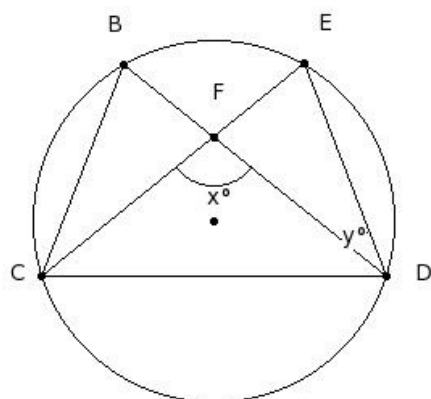
(i) 77° (ii) 102° (iii) 72° (iv) 82° (v) 87°

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87. In the given figure, O is the centre of the circle. Given ∠DOE = 80°, ∠BOC = 47° and ∠BFE = 88°, find ∠COD
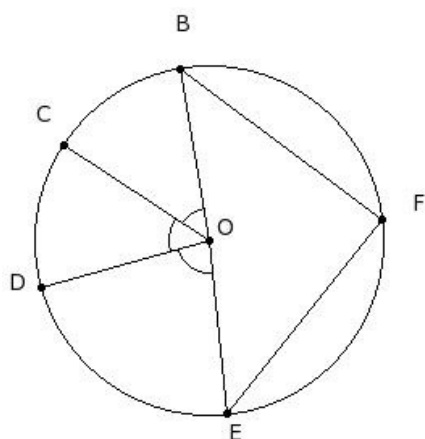
(i) 54° (ii) 79° (iii) 64° (iv) 59° (v) 49°

88. In the given figure, ∠GFE = 48° & ∠OHE = 50°, find ∠OIH
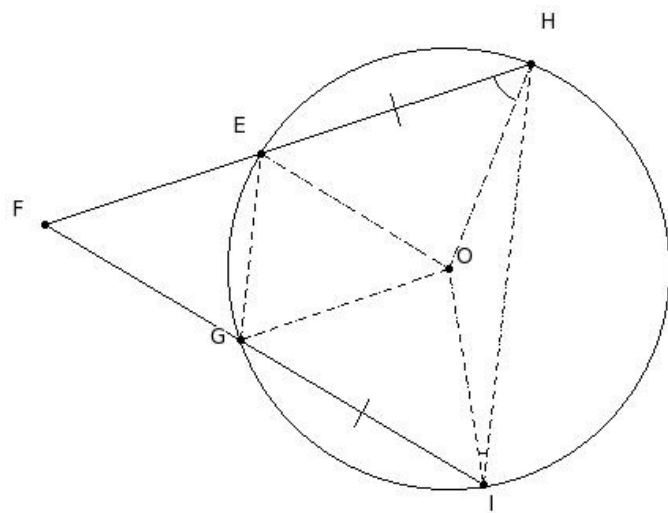
(i) 16° (ii) 46° (iii) 21° (iv) 31° (v) 26°

Assignment Key

1) (ii)	2) (ii)	3) (iv)	4) (i)	5) (iii)	6) (iii)
7) (ii)	8) (ii)	9) (ii)	10) (iii)	11) (iii)	12) (iii)
13) (iv)	14) (i)	15) (v)	16) (ii)	17) (ii)	18) (iv)
19) (ii)	20) (iv)	21) (v)	22) (ii)	23) (iv)	24) (v)
25) (v)	26) (iii)	27) (i)	28) (v)	29) (iv)	30) (iii)
31) (v)	32) (iv)	33) (i)	34) (ii)	35) (iii)	36) (iii)
37) (ii)	38) (iii)	39) (i)	40) (i)	41) (i)	42) (i)
43) (i)	44) (v)	45) (i)	46) (iv)	47) (i)	48) (iii)
49) (iv)	50) (iii)	51) (iv)	52) (v)	53) (ii)	54) (iii)
55) (iv)	56) (ii)	57) (ii)	58) (i)	59) (v)	60) (iv)
61) (v)	62) (iv)	63) (ii)	64) (iv)	65) (i)	66) (v)
67) (v)	68) (i)	69) (iii)	70) (v)	71) (i)	72) (ii)
73) (v)	74) (ii)	75) (iii)	76) (i)	77) (iii)	78) (v)
79) (i)	80) (iii)	81) (ii)	82) (v)	83) (ii)	84) (v)
85) (iv)	86) (iii)	87) (v)	88) (i)		