EduSahara™ Learning Center Assignment

Grade : Class X, ICSE
Chapter : Angle Properties of a Circle
Name : Circles - Angle Properties1

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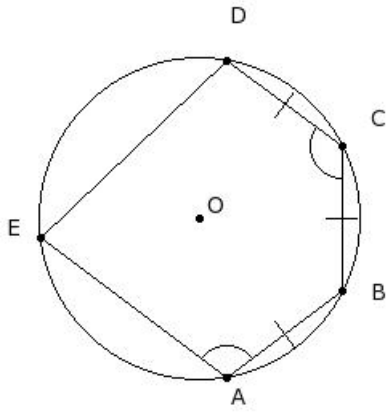
1. In the given figure, a pentagon is inscribed in a circle with centre O. Given AB = BC = CD , ∠BCD = 107° and ∠EAB = 107°. Find ∠EAD



(i) 49° (ii) 34° (iii) 64° (iv) 44° (v) 39°

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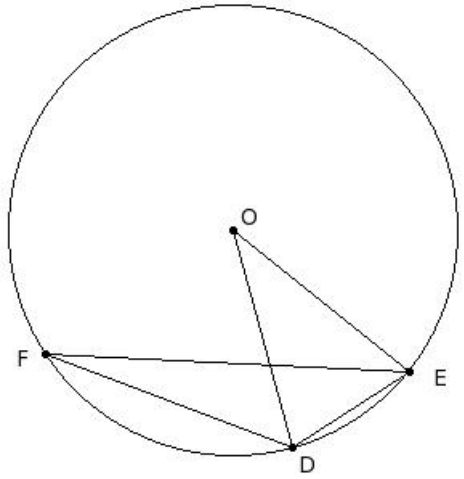
2. In the given figure, DE is a side of regular 5-sided polygon and DF is a side of regular 10-sided polygon inscribed in a circle with centre O. Find ∠DOE



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

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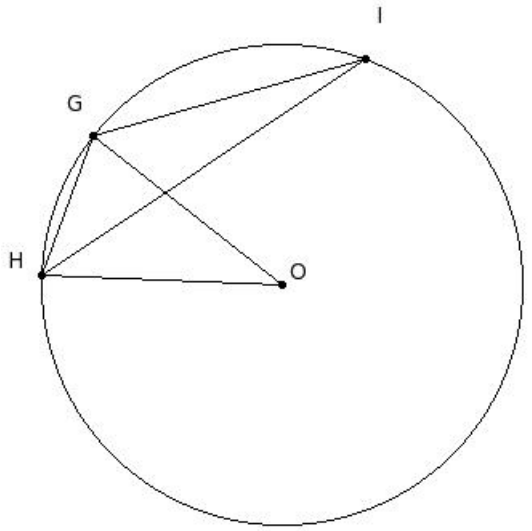
3. In the given figure, GH is a side of regular 5-sided polygon and GI is a side of regular 10-sided polygon inscribed in a circle with centre O. Find ∠GIH



(i) 46° (ii) 66° (iii) 36° (iv) 41° (v) 51°

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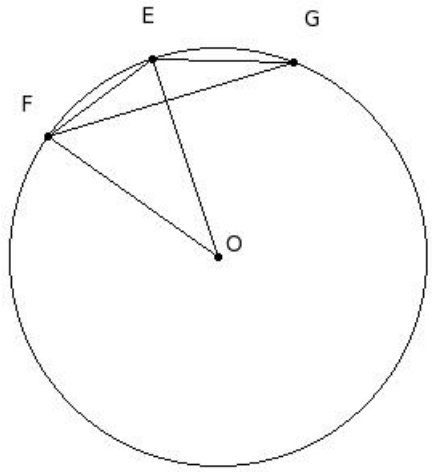
4. In the given figure, EF is a side of regular 9-sided polygon and EG is a side of regular 10-sided polygon inscribed in a circle with centre O. Find ∠EFG



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

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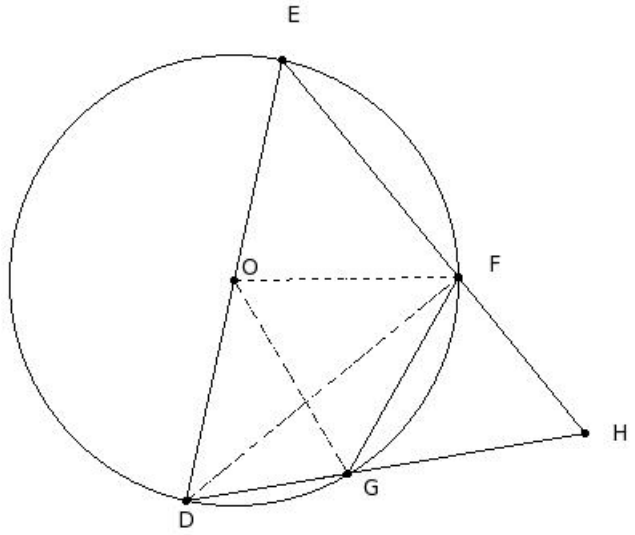
5. In the given figure, O is the centre of the circle. DE is a diameter of the circle and FG is equal to radius. Find ∠DHE



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

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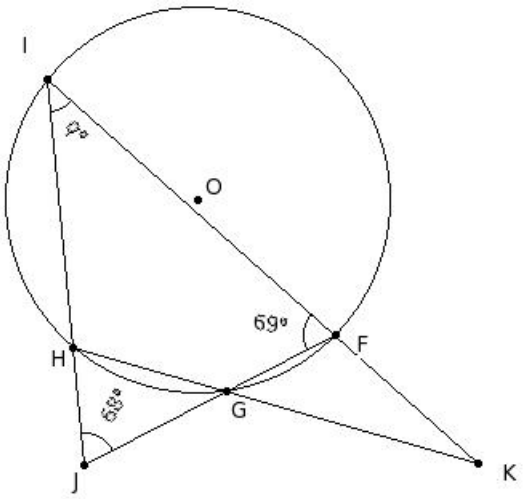
6. In the given figure, O is the centre of the circle. If ∠GJH = 68° and ∠GFI = 69°, find ∠FIH



(i) 48° (ii) 43° (iii) 53° (iv) 73° (v) 58°

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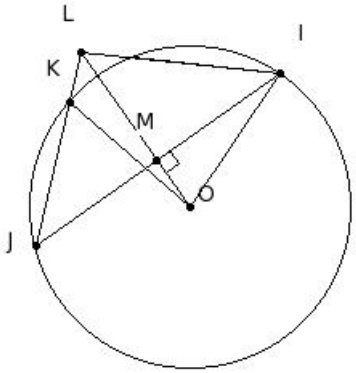
7. In the given figure, O is the centre of the circle, and OM ⊥ IJ. If ∠IJK = 41.5°, find ∠IOK



(i) 98° (ii) 83° (iii) 88° (iv) 93° (v) 113°

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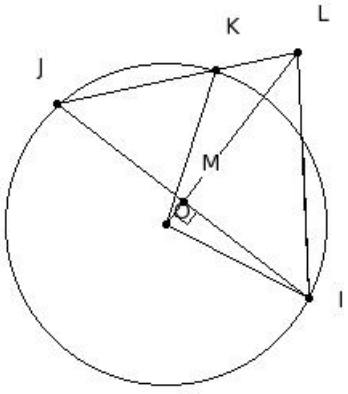
8. In the given figure, O is the centre of the circle, and OM ⊥ IJ. If ∠IJK = 50°, find ∠OLK



(i) 40° (ii) 45° (iii) 55° (iv) 70° (v) 50°

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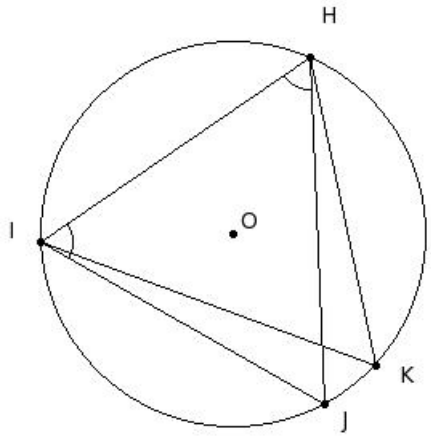
9. In the given figure, O is the centre of the circle. If ∠JHI = 57.99° and ∠HIJ = 64.1°, find the angle ∠HKI



(i) 62.91° (ii) 87.91° (iii) 57.91° (iv) 67.91° (v) 72.91°

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10. Which of the following statements are true?
    a) Atmost one chord can be drawn on a circle with a certain length
    b) A chord divides a circle into two sectors
    c) The radius is the shortest chord
    d) A chord divides a circle into two segments
    e) The diameter is the longest chord

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

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

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

---

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

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

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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 midpoint of any diameter of a circle is its centre
    d) The longest of all chords of a circle is called diameter
    e) A sector is the area enclosed by two radii and a chord

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

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14. Which of the following statements are true?
    a) If a trapezium 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) A cyclic quadrilateral is a regular polygon
e) If a parallelogram is cyclic, it is a rectangle

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

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15. Which of the following statements are true?

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

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

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16. Which of the following are cyclic quadrilaterals?

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

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

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17. Which of the following statements are true?

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

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

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18. Which of the following statements are true?

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

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

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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) If a circle can be inscribed in a quadrilateral, it must be a kite
d) It is always possible to inscribe a circle in a regular polygon

e) It is always possible to inscribe a circle in a quadrilateral

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

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20. Which of the following statements are true?

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

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

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

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

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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) $\frac{x°}{2}$

(iv) $x°$

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

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

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24. An arc subtends 115° in its alternate segment. The arc is

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

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25. An arc subtends 44° in its alternate segment. The arc is

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

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26. An arc subtends 79° in its alternate segment. Its corresponding major arc subtends what angle in its (major arc) alternate segment?

(i) 101° (ii) 116° (iii) 111° (iv) 131° (v) 106°

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

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

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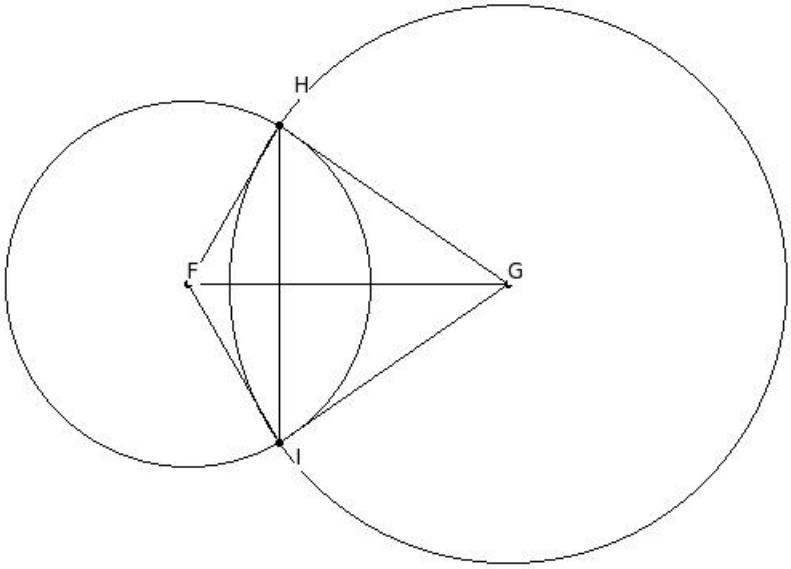
28. In the given figure, two circles of radii FH = 11.4 cm & GH = 17.4 cm intersect at H & I. The distance between the centres FG = 20 cm, find the length of HI



(i) 19.77 cm (ii) 20.77 cm (iii) 18.77 cm (iv) 17.77 cm (v) 21.77 cm

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

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

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

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

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

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

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32. Angle subtended in the major segment is

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

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33. The opposite angles in a cyclic quadrilateral are

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

(iv) equal

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

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

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35. Circles having common centre are called

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

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36. If two circles are concentric, then

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

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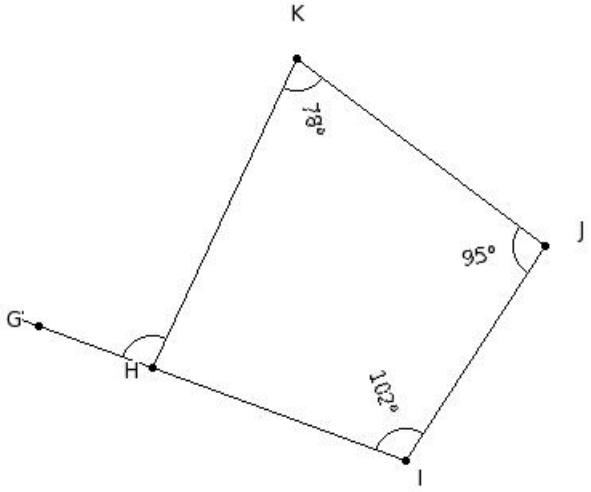
37. In the given figure, HIJK is cyclic quadrilateral. If ∠IJK = 95°, find ∠GHK



(i) 125° (ii) 110° (iii) 100° (iv) 95° (v) 105°

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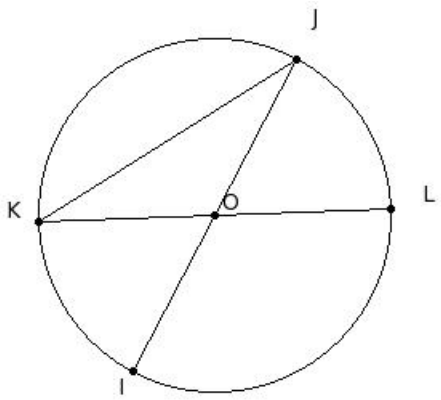
38. In the given figure, IJ & KL are diameters of the circle. If ∠IJK = 30° find, ∠JOK



(i) (ii) (iii) (iv) (v)

150° 125° 120° 130° 135°

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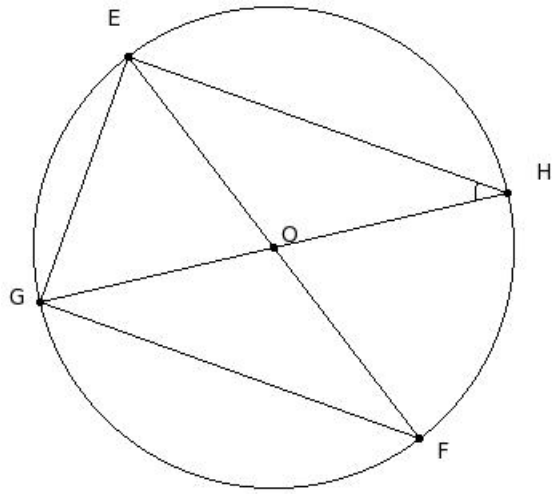
39. In the given figure, EF & GH are diameters of the circle. If ∠EHG = 33°, find ∠OGF



(i) 43° (ii) 48° (iii) 38° (iv) 63° (v) 33°

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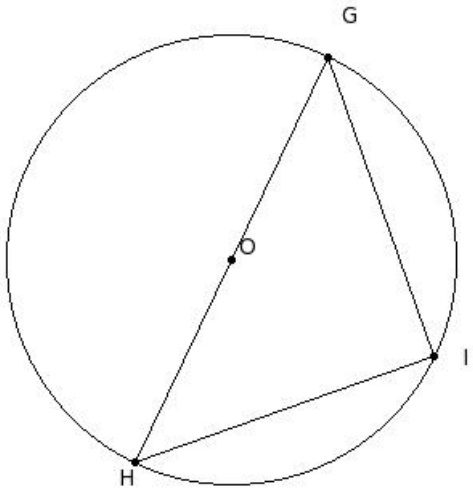
40. In the given figure GI & HI are equal length chords of the circle. Find ∠IGH



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

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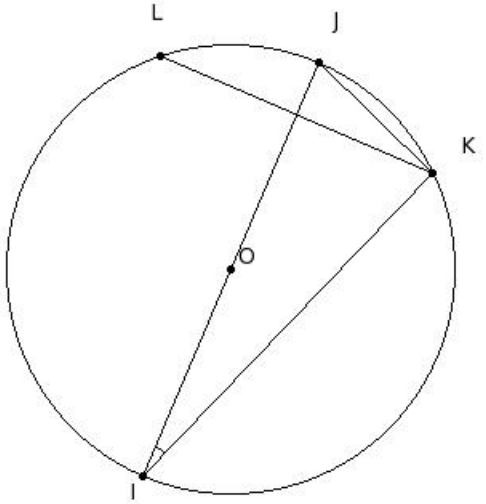
41. In the given figure, IJ is a diameter of the circle with centre O. If ∠JIK = 20.67° and JK = JL, find ∠LKI



(i) 79.33° (ii) 99.33° (iii) 84.33° (iv) 74.33° (v) 69.33°

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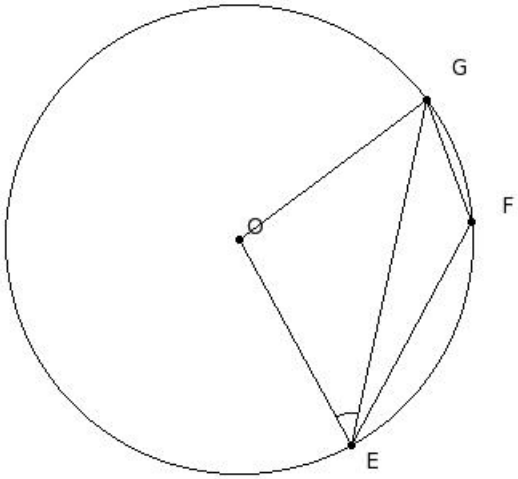
42. In the given figure, O is the centre of the circle. If ∠OEG = 41°, find ∠F



(i) 136° (ii) 161° (iii) 131° (iv) 141° (v) 146°

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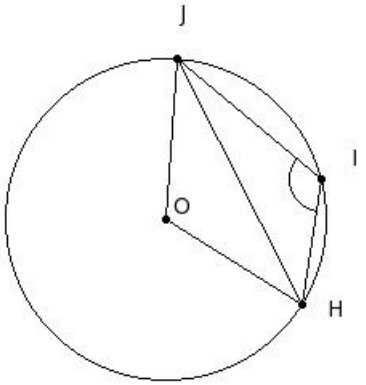
43. In the given figure, O is the centre of the circle. If ∠HIJ = 121°, find ∠OHJ



(i) 61° (ii) 46° (iii) 36° (iv) 41° (v) 31°

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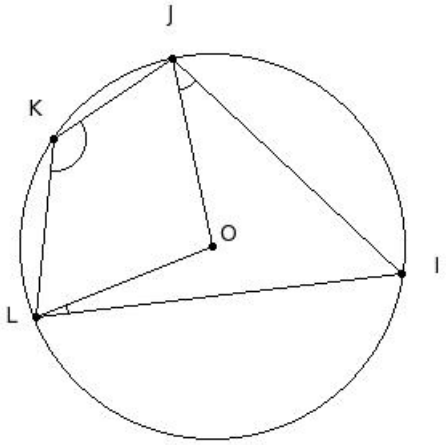
44. In the given figure, O is the centre of the circle. If ∠IJO = 35° and ∠OLI = 15°, find ∠JKL



(i) 135° (ii) 130° (iii) 160° (iv) 145° (v) 140°

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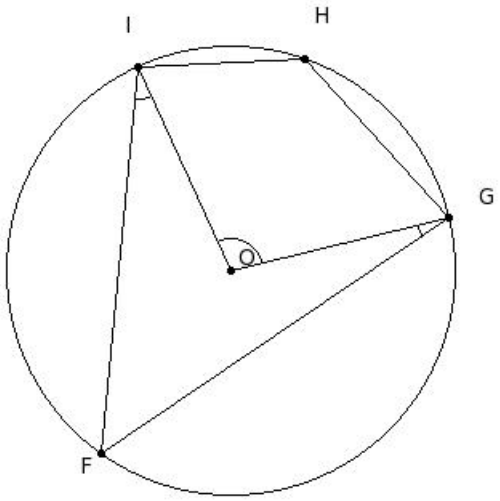
45. In the given figure, O is the centre of the circle. If ∠FGO = 20° and ∠OIF = 30°, find ∠GOI



(i) 130° (ii) 105° (iii) 100° (iv) 115° (v) 110°

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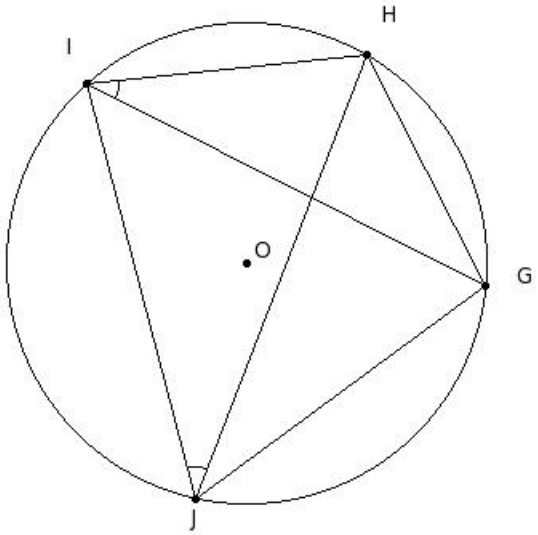
46. In the given figure, GHIJ is a cyclic quadrilateral. If ∠GIH = 33° and ∠IJH = 36°, find ∠GHI



(i) 121° (ii) 126° (iii) 116° (iv) 111° (v) 141°

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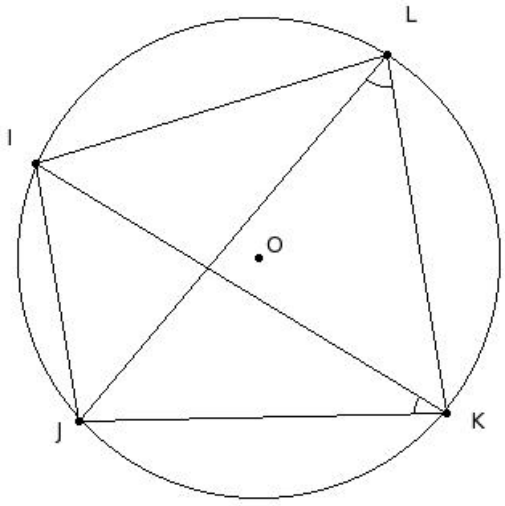
47. In the given figure, IJKL is a cyclic quadrilateral. If ∠IKJ = 33° and ∠KLJ = 49°, find ∠ILK



(i) 87° (ii) 82° (iii) 112° (iv) 97° (v) 92°

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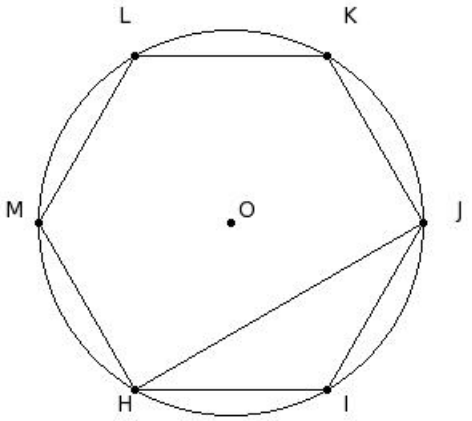
48. In the given figure, HIJKLM is a regular hexagon. Find ∠HJI



(i) 30° (ii) 45° (iii) 40° (iv) 35° (v) 60°

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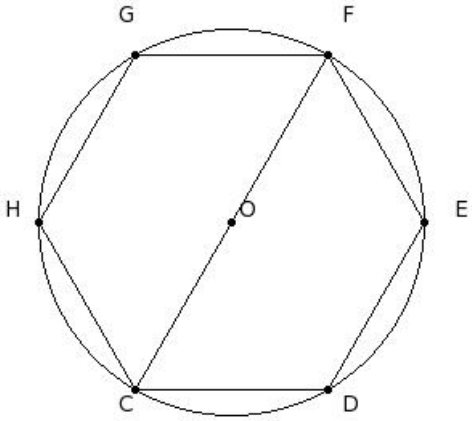
49. In the given figure, CDEFGH is a regular hexagon. Find ∠CFE



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

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50. With the vertices of a triangle △FGH as centres, three circles are drawn touching each other externally. If the sides of the triangle are 10 cm , 16 cm and 12 cm , find the radii of the circles

(i) 3 cm , 7 cm & 9 cm respectively

(ii) 3 cm , 7 cm & 14 cm respectively

(iii) 8 cm , 7 cm & 9 cm respectively

(iv) 3 cm , 12 cm & 9 cm respectively

(v) 8 cm , 12 cm & 14 cm respectively

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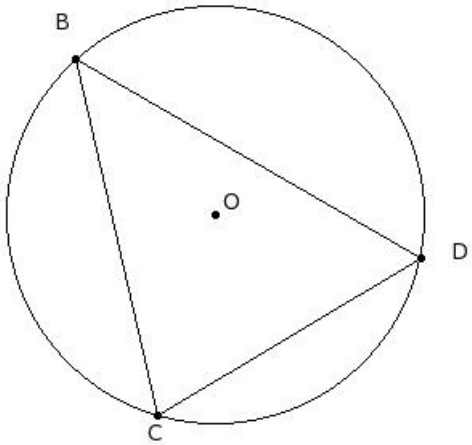
51. O is the centre of the circle. If ∠CDB = 61°, find the angle ∠OCB



(i) (ii) (iii) (iv) (v)

39° 59° 44° 29° 34°

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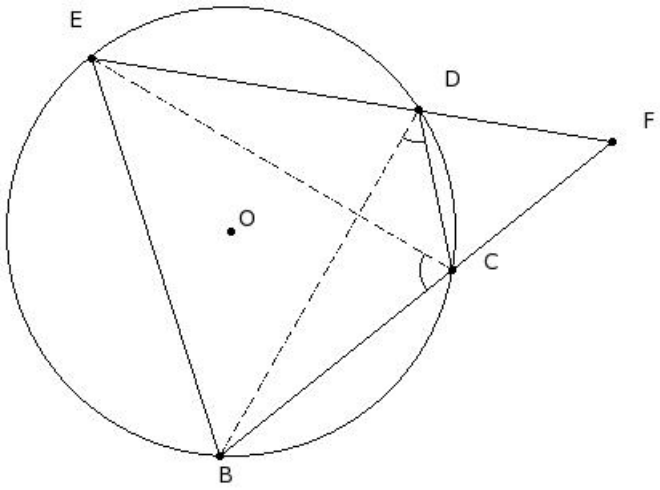
52. In the given figure, BCDE is a cyclic quadrilateral. If ∠BCE = 69° and ∠CDB = 42°, find ∠CDE



(i) 126° (ii) 111° (iii) 141° (iv) 121° (v) 116°

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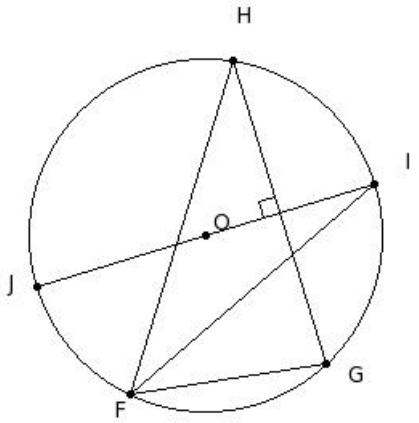
53. IJ is the perpendicular bisector of side GH of △FGH. Given ∠FGH = 82° and ∠IFH = 32° , find ∠FHG



(i) 44° (ii) 39° (iii) 64° (iv) 49° (v) 34°

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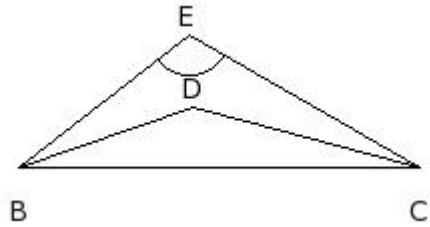
54. In the given figure, △EBC is a scalene triangle. DB bisects ∠EBC. Similarly CD bisects ∠BCE. Given ∠CEB = 112°, find ∠CDB



(i) 156° (ii) 161° (iii) 151° (iv) 176° (v) 146°

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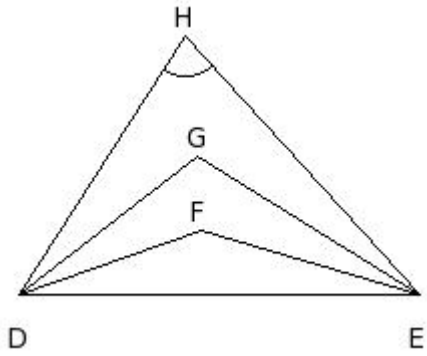
55. In the given figure, △HDE is a scalene triangle. FD & GD trisect ∠HDE. Similarly EF & EG trisect ∠DEH. Given ∠EHD = 75°, find ∠EFD



(i) 150° (ii) 145° (iii) 155° (iv) 160° (v) 175°

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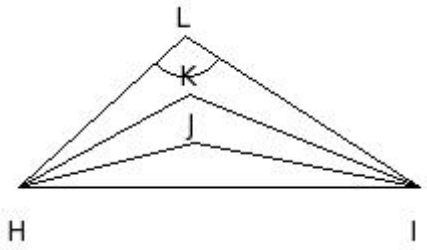
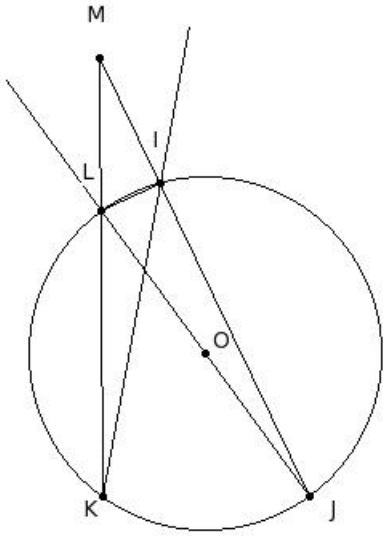
56. In the given figure, △LHI is a scalene triangle. JH & KH trisect ∠LHI. Similarly IJ & IK trisect ∠HIL. Given ∠ILH = 105°, find ∠IKH



(i) 140° (ii) 130° (iii) 145° (iv) 135° (v) 160°

---

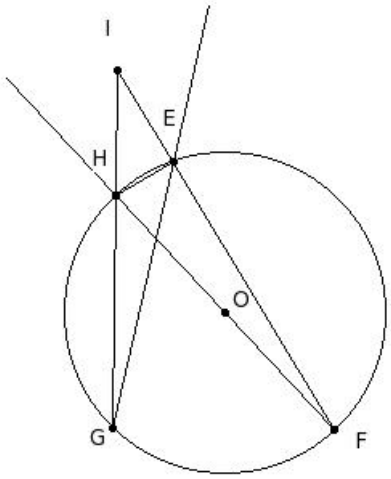
57. In the given figure, ∠IKL = 11° and ∠IML = 25°, find ∠KIL



(i) 59° (ii) 69° (iii) 84° (iv) 64° (v) 54°

---

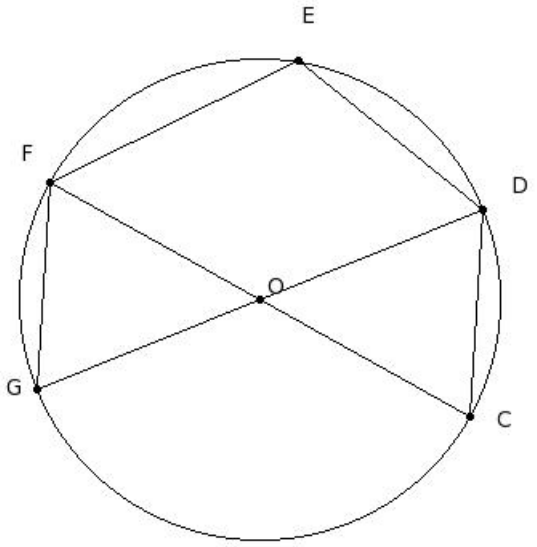
58. In the given figure, ∠EGH = 12° and ∠EIH = 32°, find ∠FHE



(i) 88° (ii) 108° (iii) 83° (iv) 93° (v) 78°

---

59. In the given figure, CD , DE , EF and FG are chords and CF , DG are diameters passing through the centre O. If ∠COD = 51°. Find ∠DEF



(i) 130.5° (ii) 145.5° (iii) 120.5° (iv) 115.5° (v) 125.5°

---

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

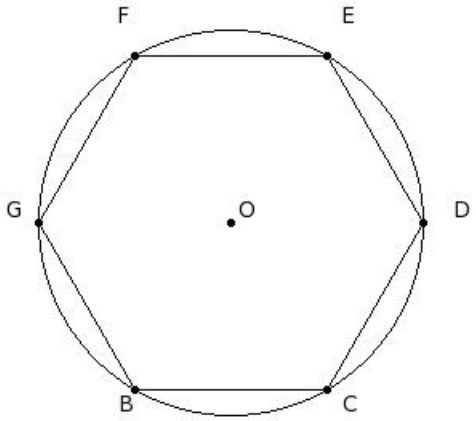
a) ∠BDC = 60°

b) ∠BOG = 60°

c) ∠GED = 90°

d) ∠COE = 120°

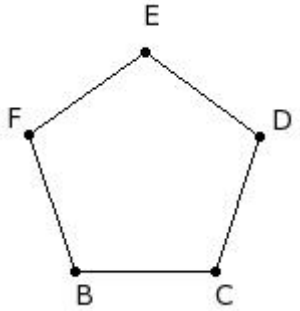
e) ∠CFD = 30°



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

---

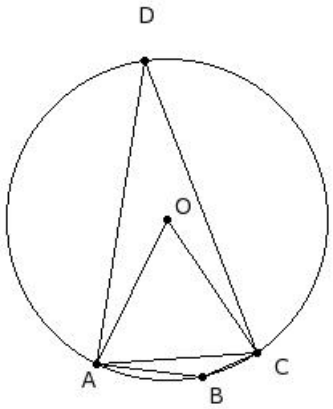
61. In the given figure, BCDEF is a regular pentagon . Find ∠BFD



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

---

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



(i) 60° & 120°

(ii) 30° & 150°

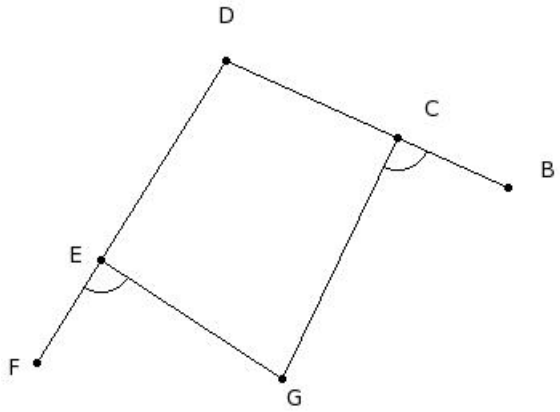
(iii) 40° & 140°

(iv) 50° & 130°

(v) 45° & 135°

---

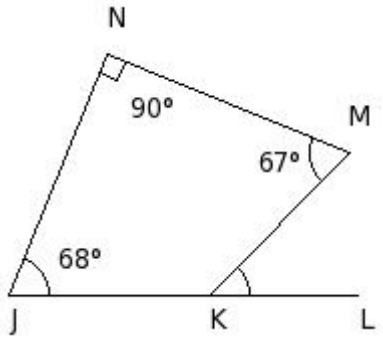
63. In the given figure, CDEG is a cyclic quadrilateral where DE and DC are produced to F and B respectively. If ∠BCG = 91°, find ∠FEG



(i) 99° (ii) 94° (iii) 89° (iv) 119° (v) 104°

---

64. In the given figure, ∠J = 68° , ∠M = 67° and ∠N = 90°, find ∠MKL



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

---

65. Which of the following statements are true?

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

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

---

66. Which of the following statements are true?

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

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

---

67. Which of the following are not cyclic quadrilaterals?

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

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

---

68. Which of the following statements are true?

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

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

---

69. In triangle HIJ, if a circle is drawn with IJ as diameter and if it passes through H it is a

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

---

70. Which of the following statements are true?

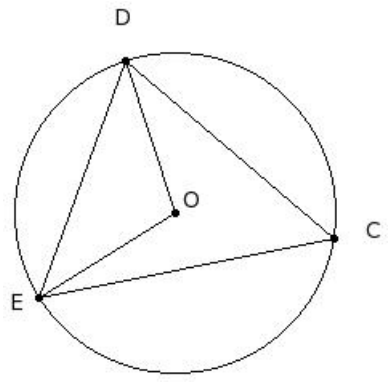
a) $\frac{22}{7}$ is a rational number
b) π is a rational number
c) All chords of a circle are diameters
d) A circle divides the plane into three mutually disjoint sets of points
e) All diameters of a circle are chords

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

---

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

a) $\angle C + \angle ODE + \angle OED = 2\angle C$
b) $\angle C + \angle DOE = 180°$
c) $\angle C + \angle OED = 90°$
d) $\angle C + \angle ODE = 90°$
e) $\angle C + \angle ODE = 120°$



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

---

72. If BCDE is a cyclic quadrilateral and $\angle B - \angle D = 28°$, then $\angle D$

(i) 81° (ii) 106° (iii) 76° (iv) 86° (v) 91°

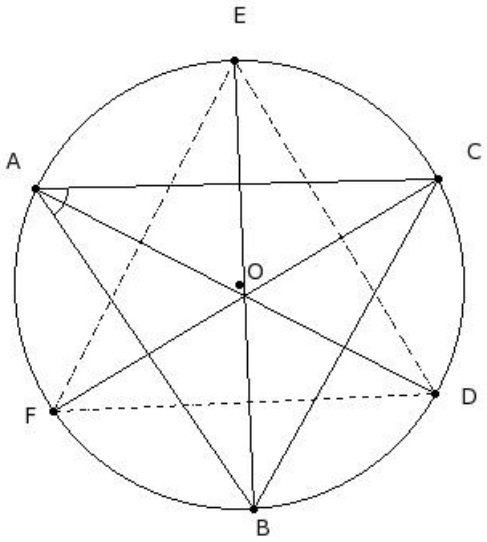
---

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

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

---

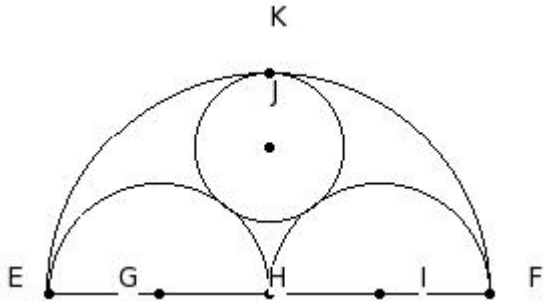
74. In the given figure, the bisectors of ∠A , ∠B & ∠C of △ABC meet the circumcircle at D , E & F. If ∠A = 57°, find ∠D



(i) 66.5° (ii) 71.5° (iii) 61.5° (iv) 76.5° (v) 91.5°

---

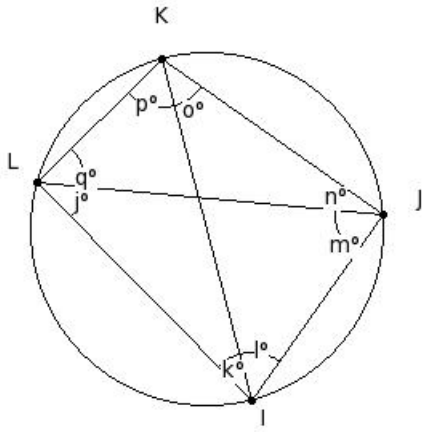
75. EF is a line segment and H is its mid-point. Three semi-circles are drawn with EH , HF and EF as diameters. G , I and H respectively are the centres of these semi-circles. A new circle is drawn touching these three semi-circles. Find its radius, given EG = 6 cm



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

---

76. In the given figure, which of the following angle pairs are equal?



(i) {(j,o),(m,p),(k,q),(n,l)}

(ii) {(j,o),(k,n),(l,q),(m,p)}

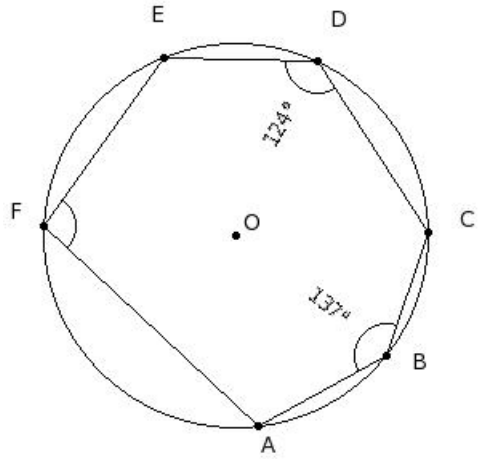
(iii) {(q,k),(j,p),(l,o),(m,n)}

(iv) {(j,l),(q,m),(p,n),(k,o)}

(v) {(p,j),(k,n),(q,o),(m,l)}

---

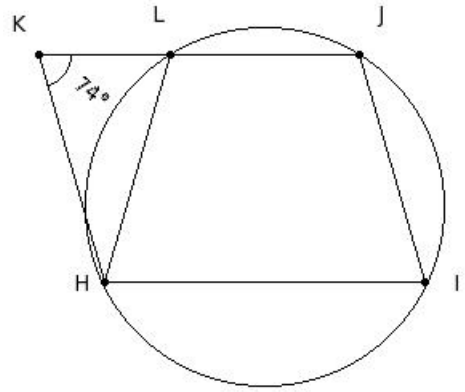
77. ABCDEF is a hexagon inscribed in a circle. Given ∠ABC = 137° & ∠CDE = 124°, find ∠EFA



(i) 104° (ii) 99° (iii) 109° (iv) 114° (v) 129°

---

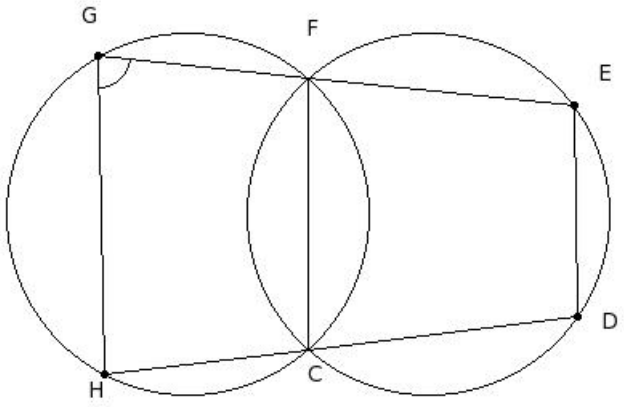
78. In the given figure, HIJK is a parallelogram. The circumcircle of △HIJ cuts JK at L. Given ∠HKL = 74°, find ∠KHL



(i) 42° (ii) 62° (iii) 32° (iv) 37° (v) 47°

---

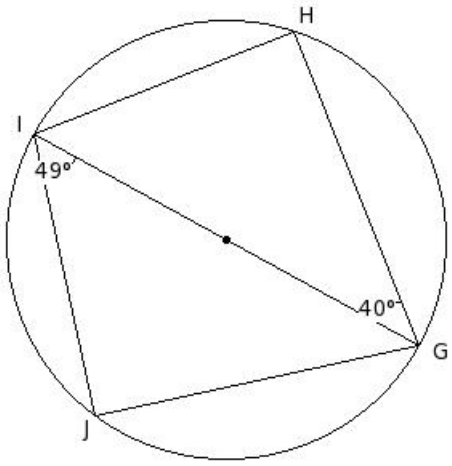
79. In the given figure, GE and HD are two lines passing through the points of intersection of the two circles at F and C. If ∠HGF = 83° , find ∠FED



(i) 112° (ii) 127° (iii) 107° (iv) 102° (v) 97°

---

80. In the given figure, find the angles of the quadrilateral



(i) G = 81° , H = 90° , I = 99° , J = 90°

(ii) G = 83° , H = 90° , I = 97° , J = 90°

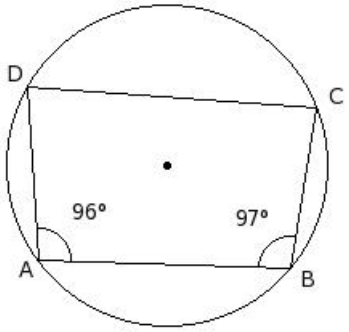
(iii) G = 80° , H = 90° , I = 100° , J = 90°

(iv) G = 79° , H = 90° , I = 101° , J = 90°

(v) G = 82° , H = 90° , I = 98° , J = 90°

---

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



(i) C = 82° , D = 81°

(ii) C = 83° , D = 82°

(iii) C = 85° , D = 84°

(iv) C = 86° , D = 85°

(v) C = 84° , D = 83°

---

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

(i) Concurrent points

(ii) Similar points

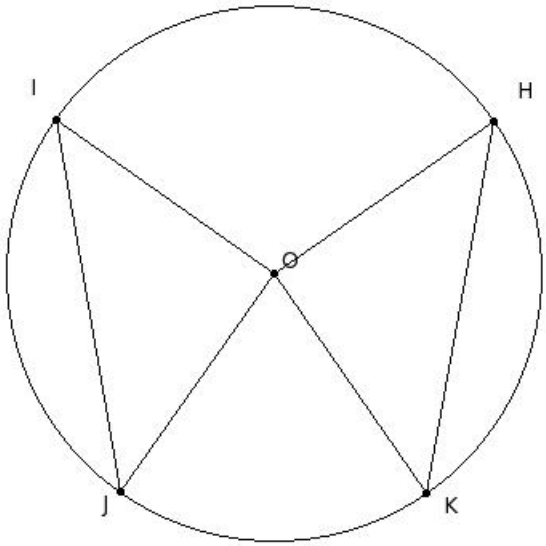
(iii) Coincident points

(iv) Concyclic points

(v) Cyclic points

---

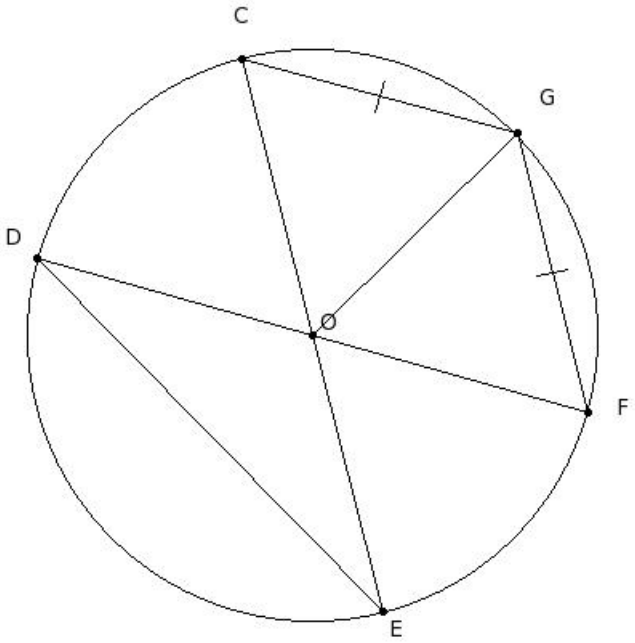
83. In the given figure, HK & IJ are two chords of equal length. Given ∠OIJ = 45°, find ∠HOK



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

---

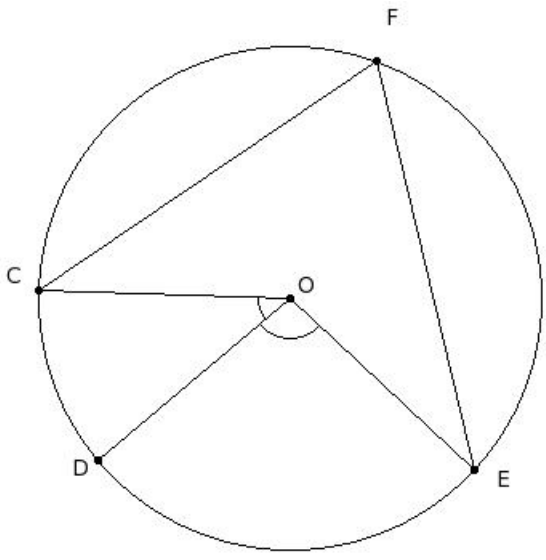
84. In the given figure, FG & GC are equal length chords, CE and DF are diameters. Given ∠FGO = 60° find, ∠EOD



(i) 125° (ii) 150° (iii) 135° (iv) 130° (v) 120°

---

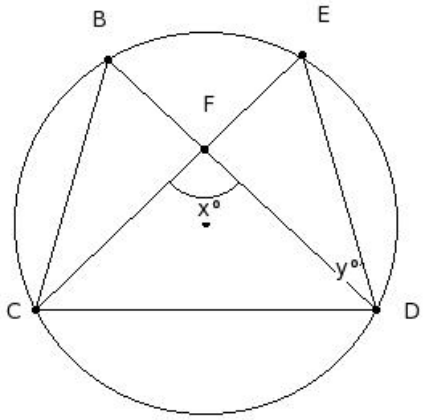
85. In the given figure, O is the centre of the circle. Given ∠CFE = 69.5° & ∠DOE = 97°, find ∠COD



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

---

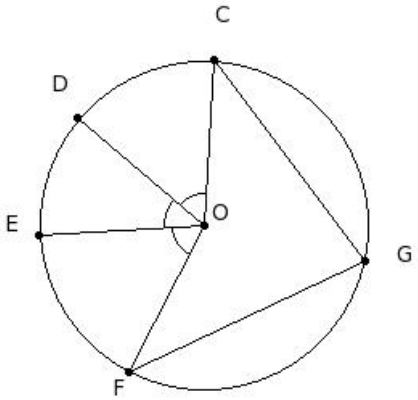
86. In the given figure, chords BD & CE meet at F. Given x = 92° and y = 30°, find ∠CBD



(i) 72° (ii) 67° (iii) 77° (iv) 92° (v) 62°

---

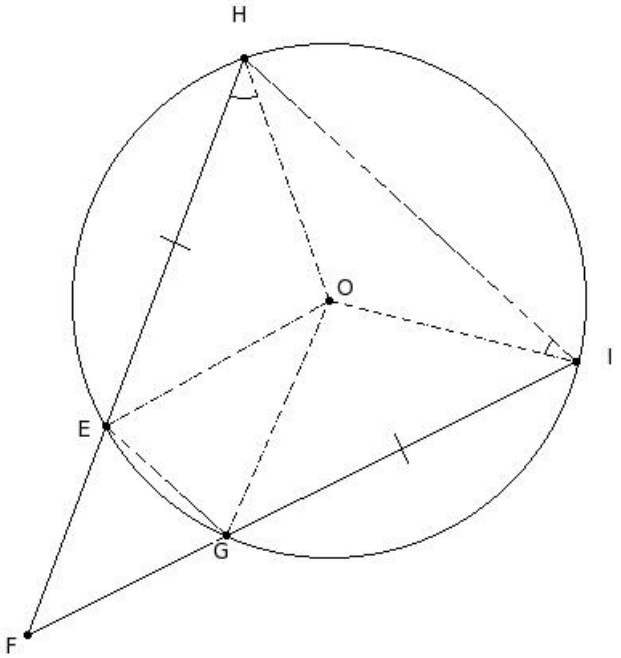
87. In the given figure, O is the centre of the circle. Given ∠DOE = 44°, ∠COD = 53° and ∠CGF = 78°, find ∠EOF



(i) 64° (ii) 89° (iii) 69° (iv) 74° (v) 59°

---

88. In the given figure, ∠GFE = 42° & ∠OIH = 29°, find ∠OHE



(i) 50° (ii) 40° (iii) 45° (iv) 55° (v) 70°

Assignment Key

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