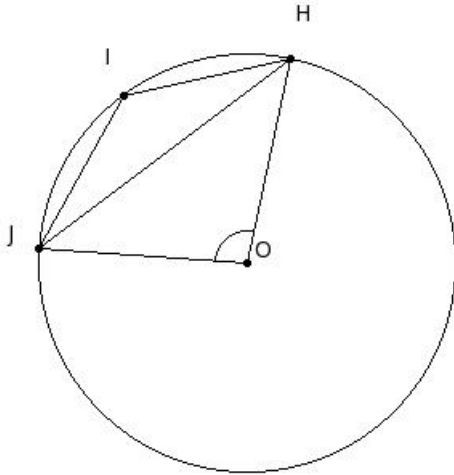


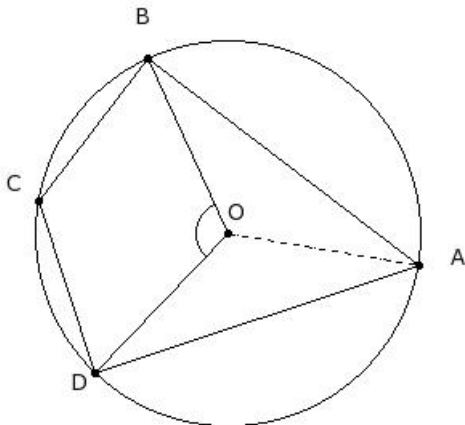
EduSahara™ Learning Center Assignment**Grade : Class IX, SSC****Chapter : Circles****Name : Circles - Angle Properties**

1. O is the centre of the circle. If $\angle O = 98^\circ$, find $\angle I$



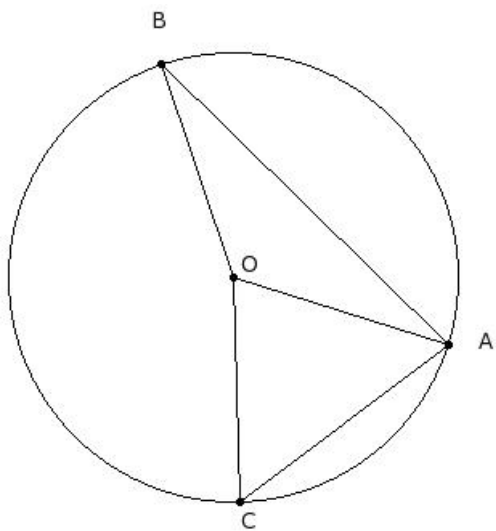
- (i) 131° (ii) 141° (iii) 161° (iv) 146° (v) 136°

2. O is the centre of the circle. If $\angle BOD = 112^\circ$, find $\angle A$



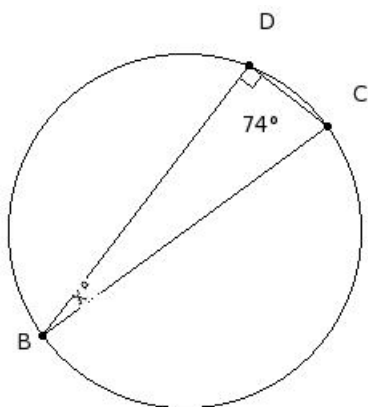
- (i) 66° (ii) 86° (iii) 61° (iv) 71° (v) 56°

3. O is the centre of the circle. If $\angle BOA = 126^\circ$ and $\angle COA = 71^\circ$, find $\angle BAC$



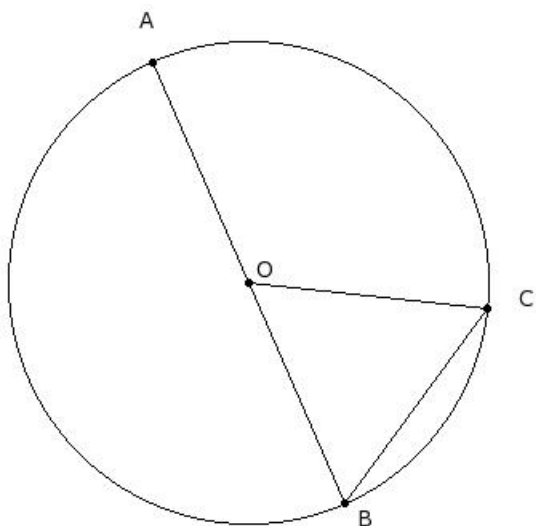
- (i) 86.5° (ii) 111.5° (iii) 81.5° (iv) 91.5° (v) 96.5°

4. Find the missing angle in the following figure?



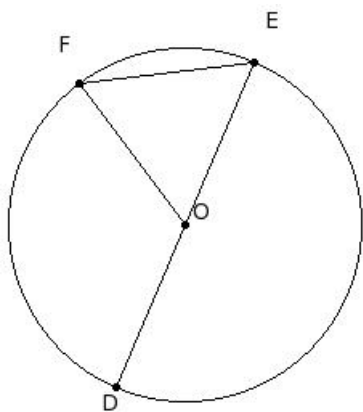
- (i) 46° (ii) 16° (iii) 26° (iv) 21° (v) 31°

5. O is the centre of the circle and $OC = BC$. Find $\angle BOC$



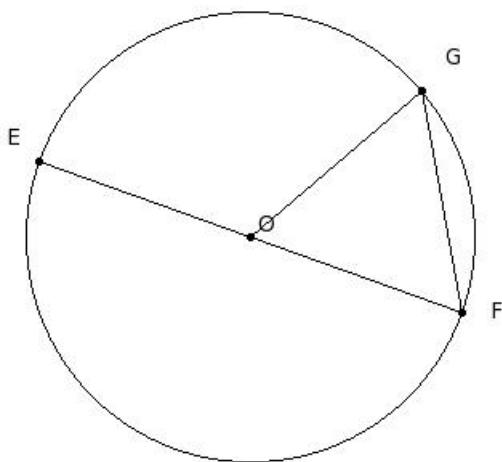
- (i) 90° (ii) 70° (iii) 75° (iv) 65° (v) 60°

6. O is the centre of the circle and $OF = EF$. Find $\angle FOD$



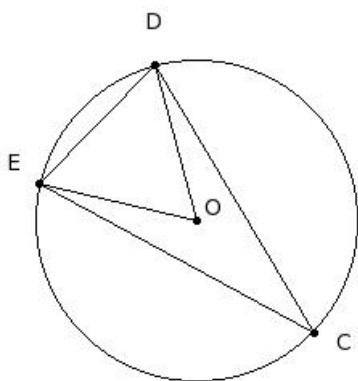
- (i) 130° (ii) 135° (iii) 125° (iv) 150° (v) 120°

7. O is the centre of the circle and $OG = FG$. Find reflex $\angle GOE$



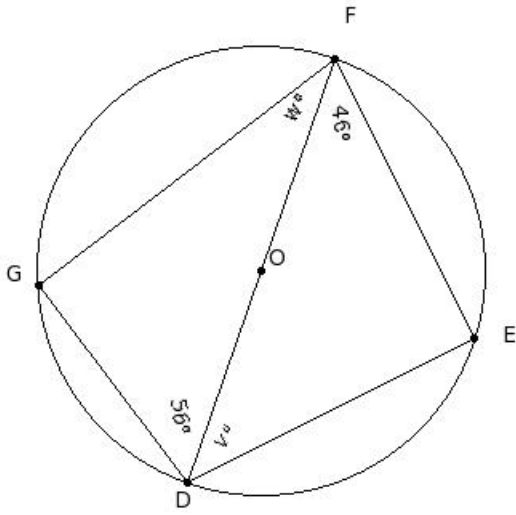
- (i) 245° (ii) 270° (iii) 255° (iv) 250° (v) 240°

8. O is the centre of the circle. If $\angle C + \angle DOE = 93^\circ$, find $\angle DOE$



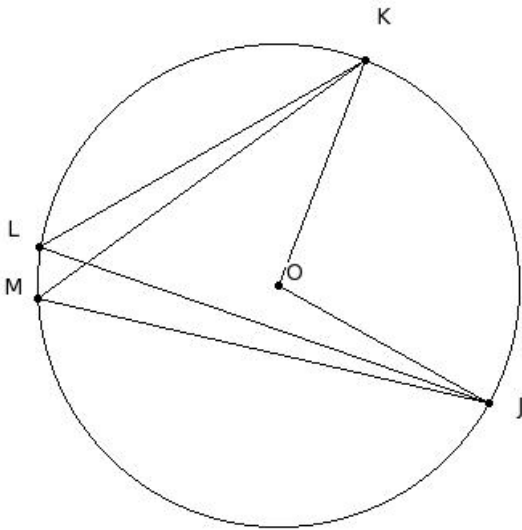
- (i) 77° (ii) 92° (iii) 62° (iv) 72° (v) 67°

9. O is the centre of the circle. If $\angle DFE = 46^\circ$ and $\angle FDG = 56^\circ$, find v° , w°



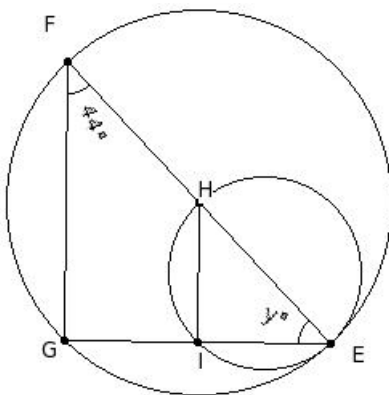
- (i) $24^\circ, 44^\circ$ (ii) $64^\circ, 64^\circ$ (iii) $34^\circ, 44^\circ$ (iv) $44^\circ, 54^\circ$ (v) $44^\circ, 34^\circ$

10. O is the centre of the circle. If $\angle JOK = 98^\circ$, find the angle $\angle L$



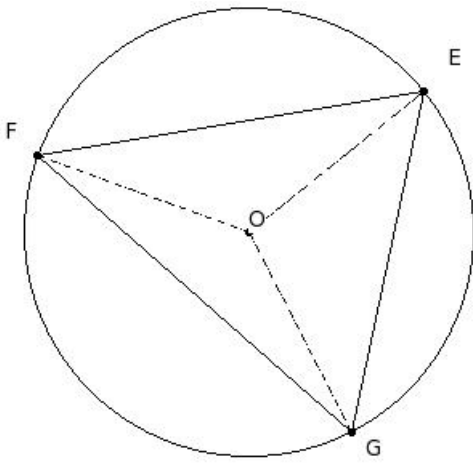
- (i) 64° (ii) 59° (iii) 49° (iv) 79° (v) 54°

11. Two circles touch internally. H is the centre of the bigger circle and lies on the smaller circle. If $\angle EFG = 44^\circ$, find $\angle E$



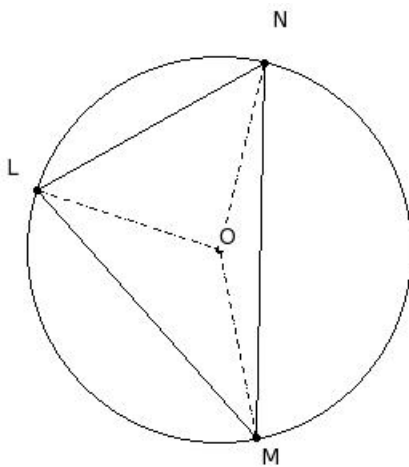
- (i) 46° (ii) 76° (iii) 56° (iv) 51° (v) 61°

12. $\triangle EFG$ is inscribed in a circle with centre O. If $\angle EOF = 121^\circ$ and $\angle FOG = 137^\circ$, find $\angle GEF$



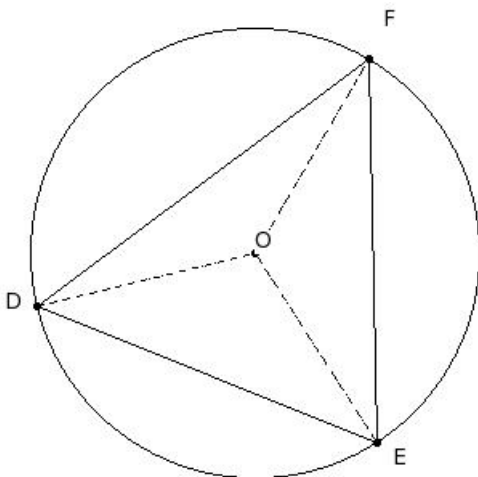
- (i) 98.5° (ii) 68.5° (iii) 83.5° (iv) 78.5° (v) 73.5°

13. $\triangle LMN$ is inscribed in a circle with centre O. If $\angle LOM = 119^\circ$ and $\angle MON = 155^\circ$, find $\angle LMN$



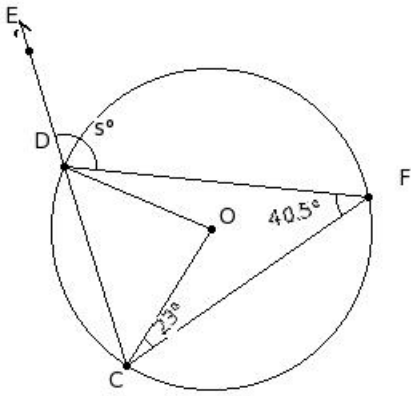
- (i) 53° (ii) 73° (iii) 48° (iv) 43° (v) 58°

14. $\triangle DEF$ is inscribed in a circle with centre O. If $\angle DOE = 109^\circ$ and $\angle EOF = 117^\circ$, find $\angle EFD$



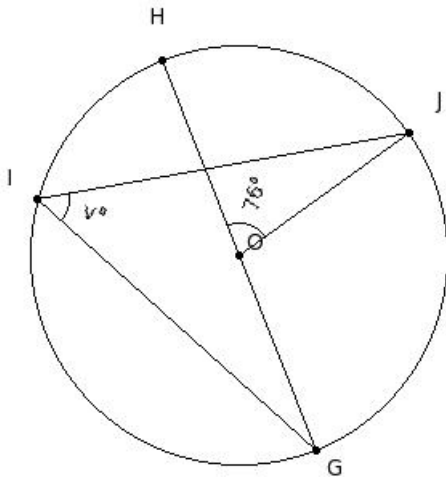
- (i) 54.5° (ii) 64.5° (iii) 59.5° (iv) 69.5° (v) 84.5°

15. In the given figure, O is the centre of the circle. If $\angle CFD = 40.5^\circ$ and $\angle OCF = 23^\circ$, find $\angle EDF$



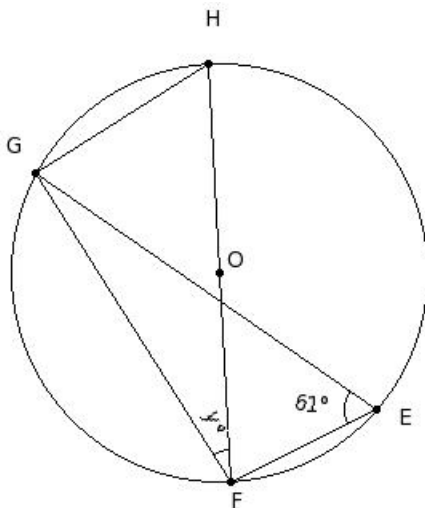
- (i) 113° (ii) 143° (iii) 128° (iv) 118° (v) 123°

16. In the given figure, O is the centre of the circle and GH is a diameter. If $\angle HOJ = 76^\circ$, find $\angle GIJ$



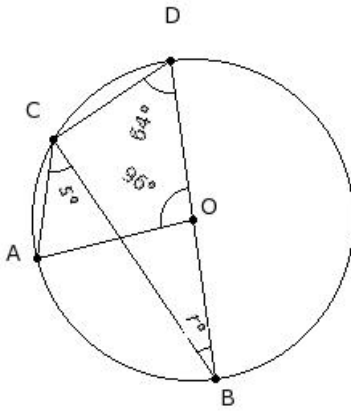
- (i) 82° (ii) 62° (iii) 57° (iv) 67° (v) 52°

17. In the given figure, O is the centre of the circle and FH is a diameter. If $\angle GEF = 61^\circ$, find $\angle GFH$



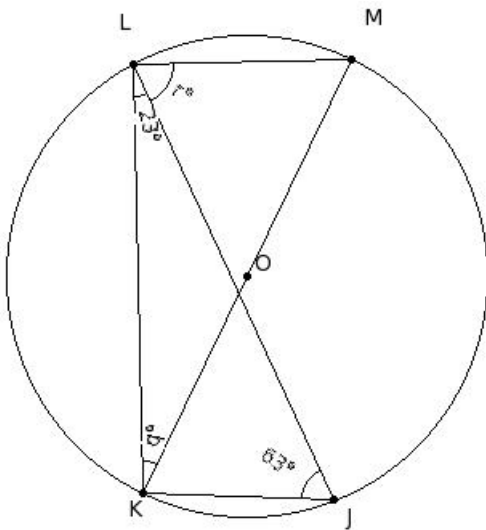
- (i) 59° (ii) 34° (iii) 44° (iv) 29° (v) 39°

18. In the given figure, O is the centre of the circle and BD is a diameter. If $\angle AOD = 96^\circ$ and $\angle ODC = 64^\circ$, find $\angle BCA + \angle CBD$



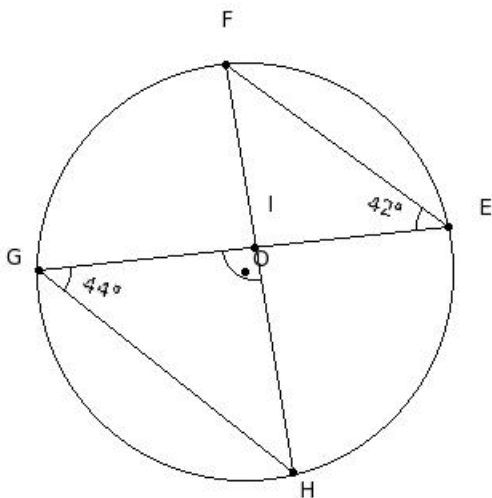
- (i) 68° (ii) 73° (iii) 78° (iv) 98° (v) 83°

19. In the given figure, O is the centre of the circle and KM is a diameter. If $\angle JLK = 23^\circ$ and $\angle KJL = 63^\circ$, find $\angle MKL + \angle JLM$



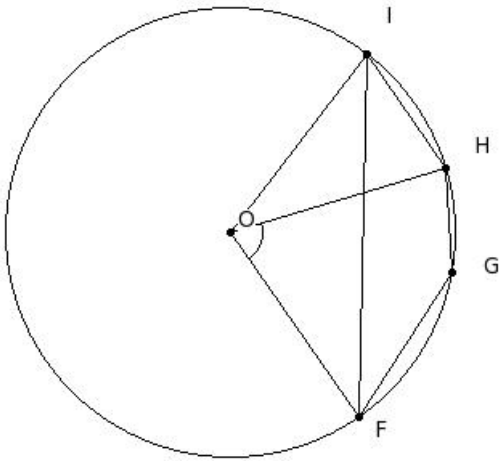
- (i) 94° (ii) 104° (iii) 109° (iv) 124° (v) 99°

20. In the given figure, O is the centre of the circle. If $\angle FEG = 42^\circ$ and $\angle EGH = 44^\circ$, find $\angle GIH$



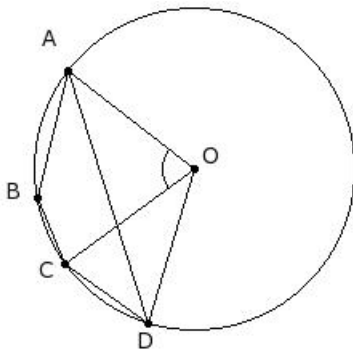
- (i) 109° (ii) 124° (iii) 104° (iv) 99° (v) 94°

21. O is the centre of the circle. If Arc FH = 2 Arc HI and $\angle FOH = 72^\circ$, find $\angle FIH$



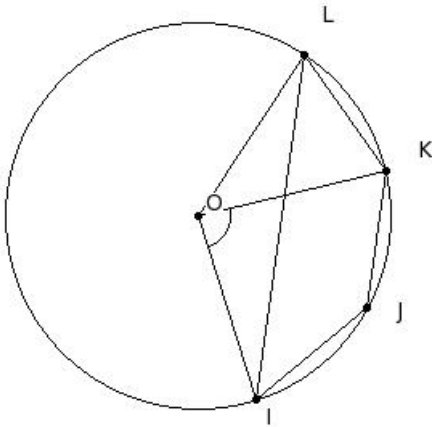
- (i) 66° (ii) 46° (iii) 41° (iv) 36° (v) 51°

22. O is the centre of the circle. If Arc AC = 2 Arc CD and $\angle AOC = 74^\circ$, find $\angle DAC$



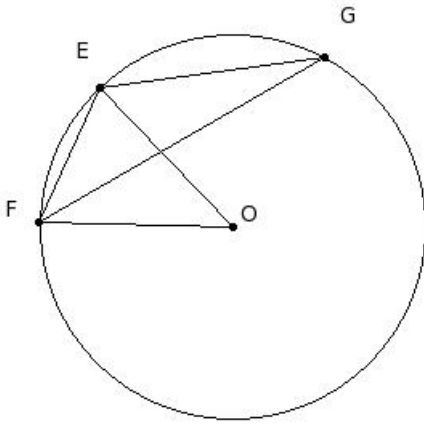
- (i) 33.5° (ii) 23.5° (iii) 18.5° (iv) 48.5° (v) 28.5°

23. O is the centre of the circle. If Arc IK = 2 Arc KL and $\angle IOK = 86^\circ$, find $\angle IJK$



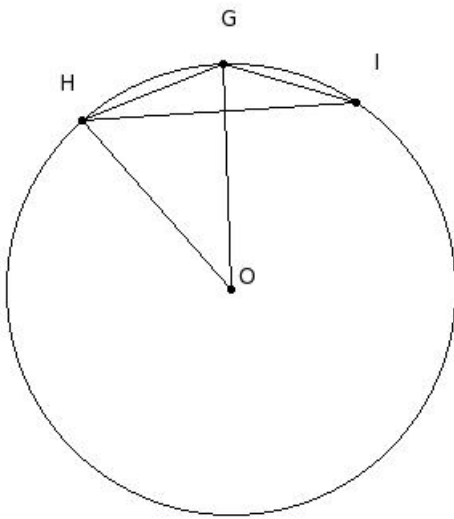
- (i) 137° (ii) 142° (iii) 167° (iv) 147° (v) 152°

24. In the given figure, EF is a side of regular 5-sided polygon and EG is a side of regular 8-sided polygon inscribed in a circle with centre O. Find $\angle EOF$



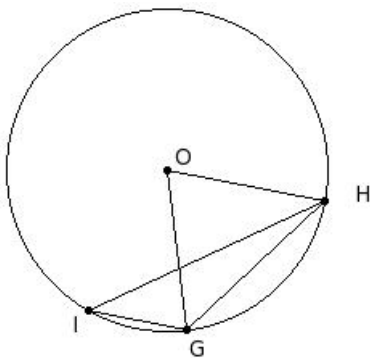
- (i) 102° (ii) 72° (iii) 82° (iv) 77° (v) 87°

25. In the given figure, GH is a side of regular 10-sided polygon and GI is a side of regular 9-sided polygon inscribed in a circle with centre O. Find $\angle GIH$



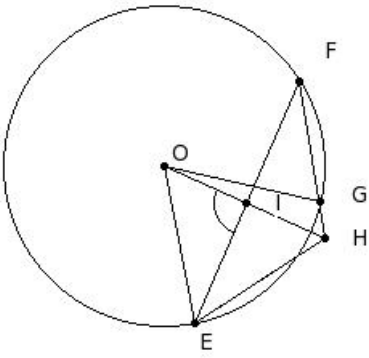
- (i) 33° (ii) 18° (iii) 48° (iv) 28° (v) 23°

26. In the given figure, GH is a side of regular 10-sided polygon and GI is a side of regular 5-sided polygon inscribed in a circle with centre O. Find $\angle GHI$



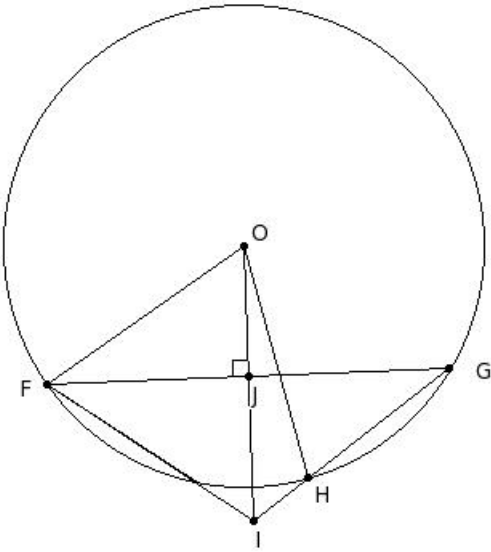
- (i) 66° (ii) 46° (iii) 41° (iv) 36° (v) 51°

27. In the given figure, O is the centre of the circle, and $OI \perp EF$. If $\angle EFG = 33^\circ$, find $\angle EOG$



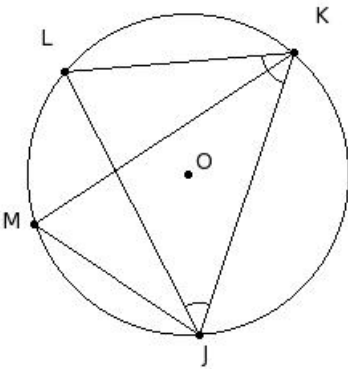
- (i) 76° (ii) 81° (iii) 96° (iv) 66° (v) 71°

28. In the given figure, O is the centre of the circle, and $OJ \perp FG$. If $\angle FGH = 35.5^\circ$, find $\angle OIH$



- (i) 64.5° (ii) 59.5° (iii) 54.5° (iv) 69.5° (v) 84.5°

29. In the given figure, O is the centre of the circle. If $\angle LJK = 45.65^\circ$ and $\angle JKL = 66.67^\circ$, find the angle $\angle JMK$



- (i) 67.68° (ii) 72.68° (iii) 77.68° (iv) 82.68° (v) 97.68°

30. Which of the following statements are true?

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

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

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

- (i) x°
 - (ii) $2x^\circ$
 - (iii) $\frac{x^\circ}{2}$
 - (iv) $4x^\circ$
-

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

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

33. An arc subtends 151° in its alternate segment. The arc is

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

34. An arc subtends 55° in its alternate segment. The arc is

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

35. An arc subtends 32° in its alternate segment. Its corresponding major arc subtends what angle in its (major arc) alternate segment?

- (i) 178° (ii) 158° (iii) 148° (iv) 163° (v) 153°
-

36. An arc subtends 66° in its alternate segment. The angle made by its corresponding major arc at the centre is

- (i) 228° (ii) 238° (iii) 243° (iv) 233° (v) 258°
-

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

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

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

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

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

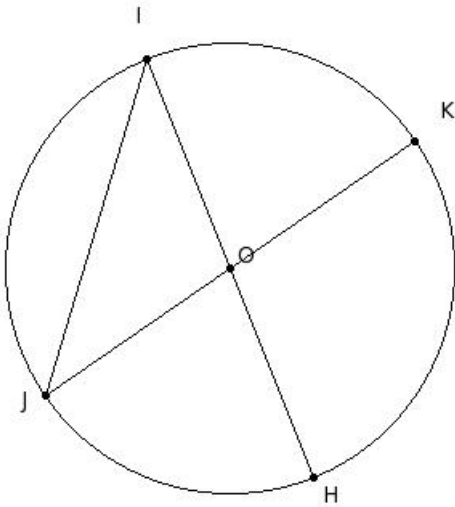
- (i) zero angle
- (ii) straight angle

- (iii) acute angle
- (iv) right angle
- (v) reflex angle

40. Angle subtended in the major segment is

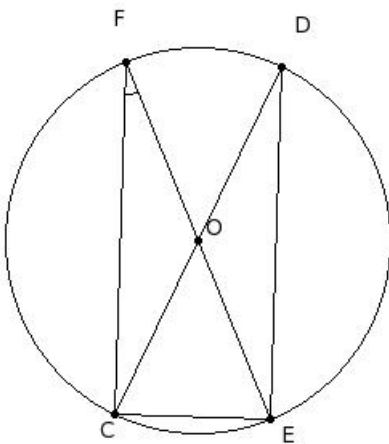
- (i) complete angle
- (ii) straight angle
- (iii) obtuse angle
- (iv) acute angle
- (v) right angle

41. In the given figure, HI & JK are diameters of the circle. If $\angle HIJ = 38.5^\circ$ find, $\angle IOJ$



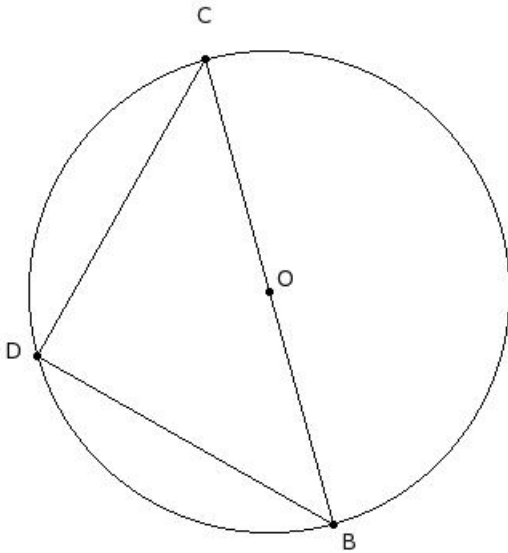
- (i) 113° (ii) 103° (iii) 133° (iv) 108° (v) 118°

42. In the given figure, CD & EF are diameters of the circle. If $\angle CFE = 24^\circ$, find $\angle OED$



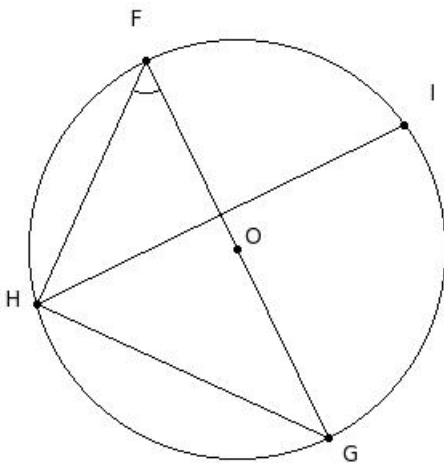
- (i) 24° (ii) 39° (iii) 54° (iv) 34° (v) 29°

43. In the given figure BD & CD are equal length chords of the circle. Find $\angle DBC$



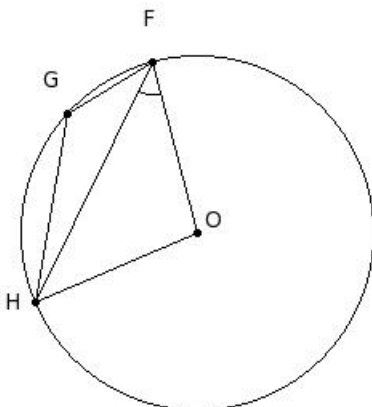
- (i) 55° (ii) 60° (iii) 75° (iv) 50° (v) 45°

44. In the given figure, FG is a diameter of the circle with centre O. If $\angle GFH = 50.22^\circ$ and $GH = GI$, find $\angle IHF$



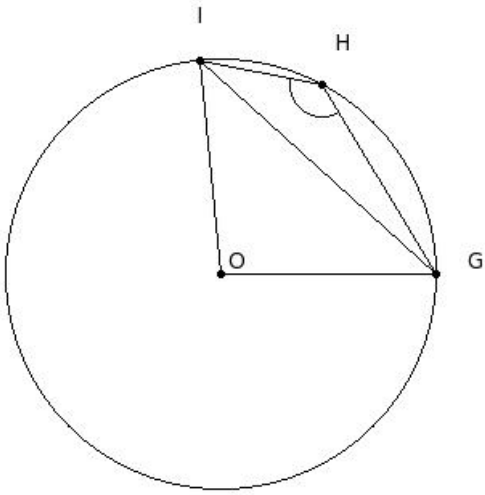
- (i) 44.78° (ii) 49.78° (iii) 54.78° (iv) 39.78° (v) 69.78°

45. In the given figure, O is the centre of the circle. If $\angle OFH = 41^\circ$, find $\angle G$



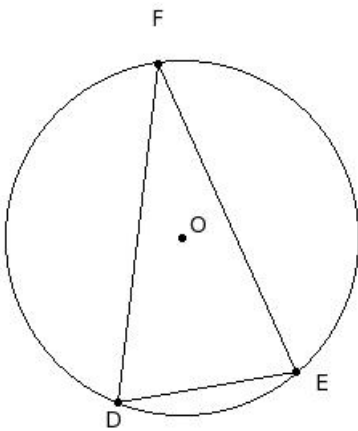
- (i) 131° (ii) 136° (iii) 146° (iv) 161° (v) 141°

46. In the given figure, O is the centre of the circle. If $\angle GHI = 132^\circ$, find $\angle OGI$



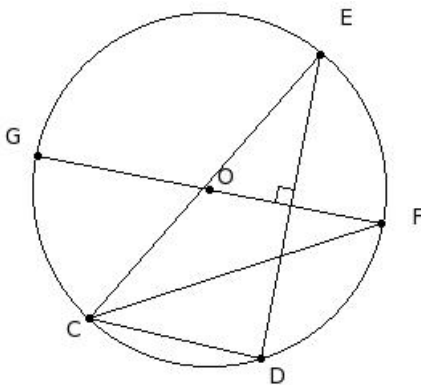
- (i) 72° (ii) 57° (iii) 42° (iv) 52° (v) 47°

47. O is the centre of the circle. If $\angle EFD = 31^\circ$, find the angle $\angle OED$



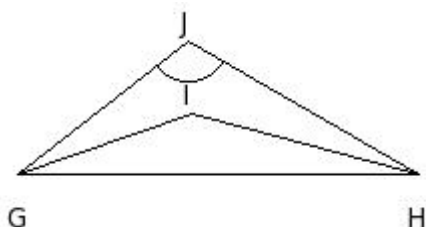
- (i) 69° (ii) 64° (iii) 59° (iv) 74° (v) 89°

48. FG is the perpendicular bisector of side DE of $\triangle CDE$. Given $\angle CDE = 88^\circ$ and $\angle FCE = 31^\circ$, find $\angle CED$



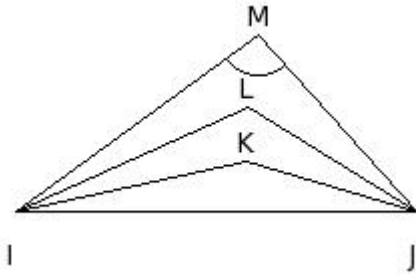
- (i) 40° (ii) 60° (iii) 30° (iv) 45° (v) 35°

49. In the given figure, $\triangle JGH$ is a scalene triangle. IG bisects $\angle JGH$. Similarly HI bisects $\angle GHJ$. Given $\angle HJG = 112^\circ$, find $\angle HIG$



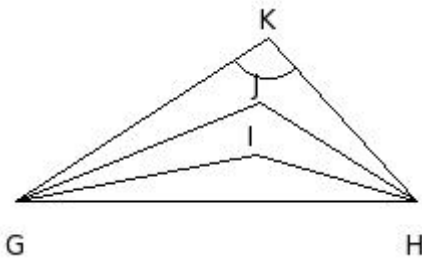
- (i) 161° (ii) 146° (iii) 176° (iv) 156° (v) 151°

50. In the given figure, $\triangle MIJ$ is a scalene triangle. KI & LI trisect $\angle MIJ$. Similarly JK & JL trisect $\angle IJM$. Given $\angle JMI = 96^\circ$, find $\angle JKI$



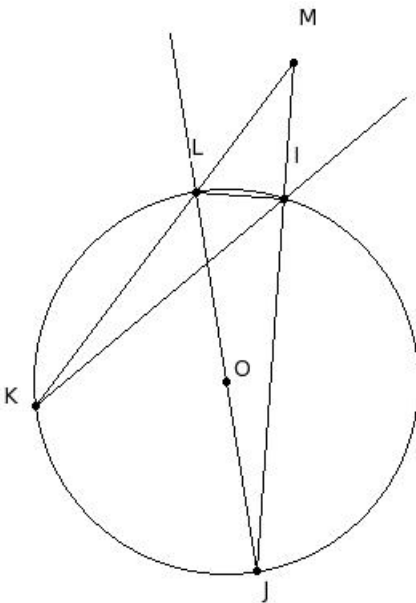
- (i) 182° (ii) 152° (iii) 157° (iv) 162° (v) 167°

51. In the given figure, $\triangle KGH$ is a scalene triangle. IG & JG trisect $\angle KGH$. Similarly HI & HJ trisect $\angle GHK$. Given $\angle HKG = 99^\circ$, find $\angle HJG$



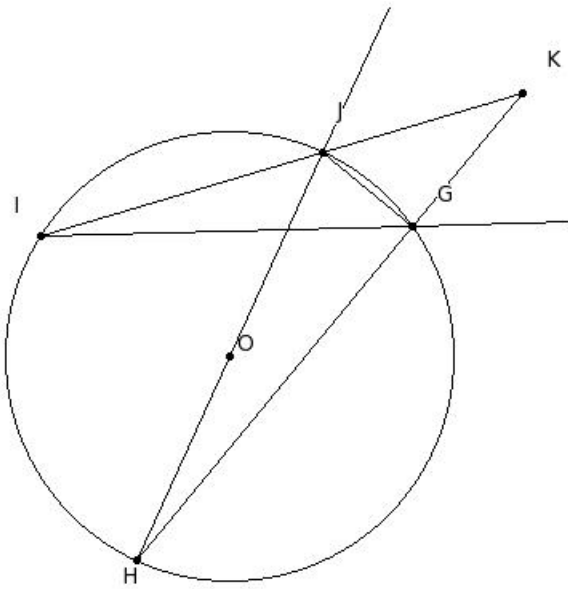
- (i) 136° (ii) 141° (iii) 156° (iv) 131° (v) 126°

52. In the given figure, $\angle IKL = 13^\circ$ and $\angle IML = 33^\circ$, find $\angle KIL$



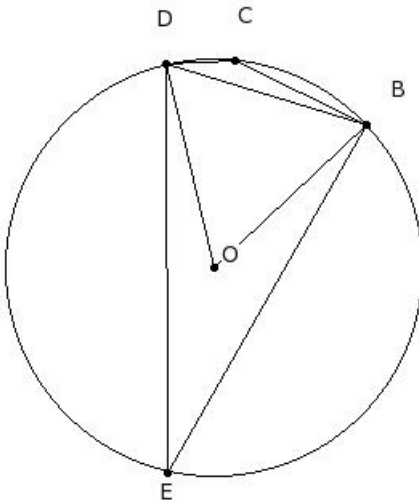
- (i) 49° (ii) 59° (iii) 44° (iv) 54° (v) 74°

53. In the given figure, $\angle GIJ = 15^\circ$ and $\angle GKJ = 34^\circ$, find $\angle HJG$



- (i) 85° (ii) 90° (iii) 75° (iv) 80° (v) 105°

54. In the given figure, BD is a chord which is equal to the radius of the circle. Find $\angle E$ and $\angle C$



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

55. Which of the following statements are true?

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

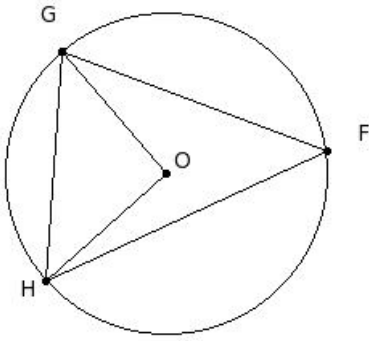
56. In the given figure, which of the following are true?

- a) $\angle F + \angle OHG = 90^\circ$
 b) $\angle F + \angle OGH + \angle OHG = 2 \angle F$

c) $\angle F + \angle GOH = 180^\circ$

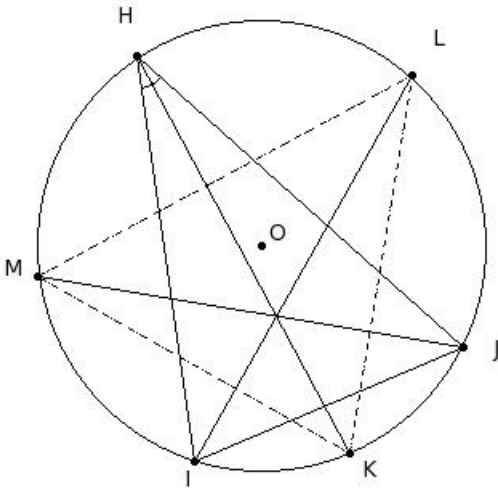
d) $\angle F + \angle OGH = 90^\circ$

e) $\angle F + \angle OGH = 120^\circ$



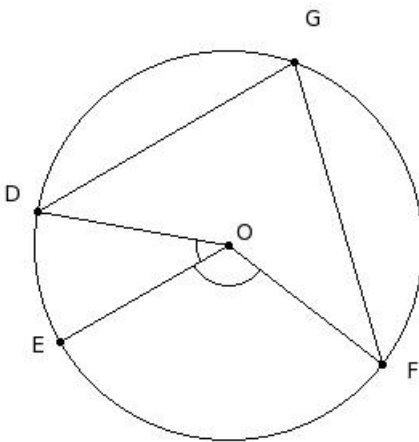
- (i) {a,d} (ii) {b,a} (iii) {c,d,a} (iv) {c,d} (v) {e,b,a}

57. In the given figure, the bisectors of $\angle H$, $\angle I$ & $\angle J$ of $\triangle HIJ$ meet the circumcircle at K, L & M. If $\angle H = 40^\circ$, find $\angle K$



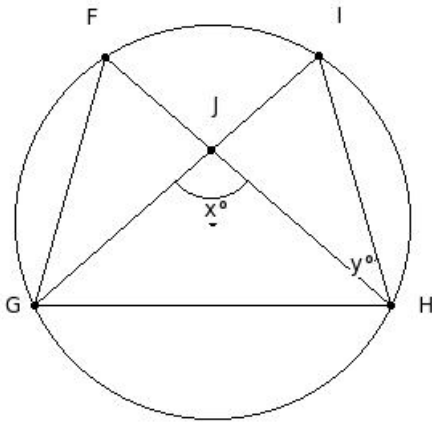
- (i)
- 70°
- (ii)
- 85°
- (iii)
- 100°
- (iv)
- 80°
- (v)
- 75°

58. In the given figure, O is the centre of the circle. Given $\angle DOE = 40^\circ$ & $\angle DGF = 76.5^\circ$, find $\angle EOF$



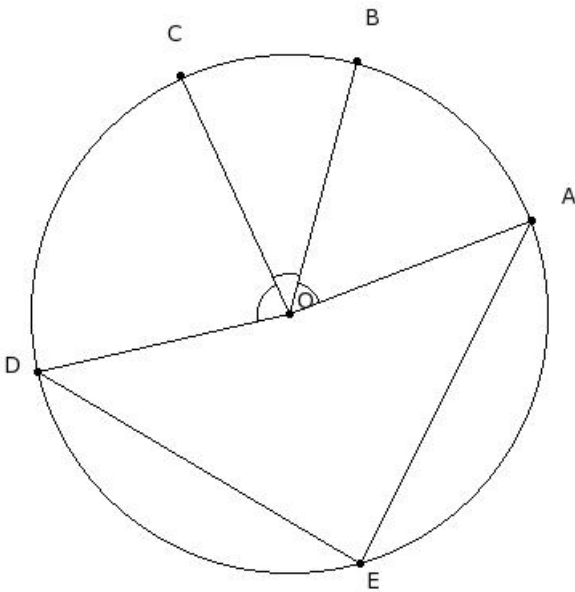
- (i)
- 128°
- (ii)
- 143°
- (iii)
- 123°
- (iv)
- 113°
- (v)
- 118°

59. In the given figure, chords FH & GI meet at J. Given $x = 98^\circ$ and $y = 33^\circ$, find $\angle GFH$



- (i) 70° (ii) 80° (iii) 75° (iv) 95° (v) 65°

60. In the given figure, O is the centre of the circle. Given $\angle AED = 86^\circ$, $\angle AOB = 54^\circ$ and $\angle COD = 78^\circ$, find $\angle BOC$



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

Assignment Key

- 1) (i)
- 2) (v)
- 3) (iii)
- 4) (ii)
- 5) (v)
- 6) (v)
- 7) (v)
- 8) (iii)
- 9) (v)
- 10) (iii)
- 11) (i)
- 12) (ii)
- 13) (iv)
- 14) (i)
- 15) (i)
- 16) (v)
- 17) (iv)
- 18) (i)
- 19) (i)
- 20) (v)
- 21) (iv)
- 22) (iii)
- 23) (i)
- 24) (ii)
- 25) (ii)
- 26) (iv)
- 27) (iv)
- 28) (iii)
- 29) (i)
- 30) (v)
- 31) (ii)
- 32) (v)
- 33) (ii)
- 34) (i)
- 35) (iii)
- 36) (i)
- 37) (ii)
- 38) (ii)
- 39) (v)
- 40) (iv)
- 41) (ii)
- 42) (i)
- 43) (v)
- 44) (iv)
- 45) (i)
- 46) (iii)
- 47) (iii)
- 48) (iii)
- 49) (ii)
- 50) (ii)
- 51) (v)
- 52) (iii)
- 53) (iii)
- 54) (iii)
- 55) (v)

- 56) (i)
- 57) (i)
- 58) (iv)
- 59) (v)
- 60) (v)