EduSahara™ Assignment

Name : Tangent Properties

Chapter : Tangents and Secants to a Circle

Grade : SSC Grade X

1. Which of the following statements are true?

   a) Every circle has a unique centre.
   b) Each radius of a circle is also a chord of the circle.
   c) A line can meet a circle atmost at two points.
   d) Every circle has a unique diameter.
   e) A circle consists of an infinite number of points.

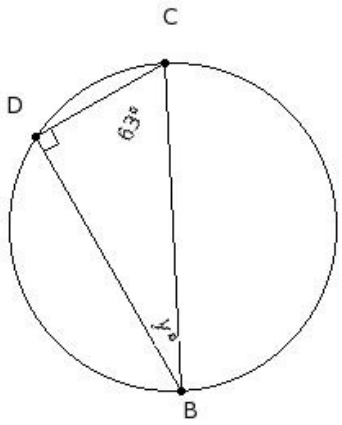
   (i) {b,a,c} (ii) {a,c,e} (iii) {b,d,e} (iv) {d,c} (v) {b,a}

2. Which of the following statements are true?

   a) A secant of a circle is a segment having its end points on the circle.
   b) One and only one tangent can be drawn to a circle from a point outside it.
   c) One and only one tangent can be drawn to pass through a point on a circle.
   d) Diameter of a circle is a part of the semi-circle of the circle.
   e) Every circle has a unique diameter.

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

3. Find the missing angle in the following figure?



   (i) 42° (ii) 57° (iii) 37° (iv) 27° (v) 32°

4. If 'l' is the length of the tangent drawn to a circle with radius 'r' from point 'P' which is 'd' cm away from the centre, then

   (i) $d=\sqrt{(l^2+r^2)}$ (ii) $d=\sqrt{(l^2-r^2)}$ (iii) $l=\sqrt{(d^2+r^2)}$ (iv) $l=\sqrt{(d^2-r^2)}$ (v) $r=\sqrt{(l^2+d^2)}$

5. Two circles with radii R and r touch internally. If the distance between their centres is d, then

   (i) d = R + r (ii) d < R + r (iii) d > R - r (iv) d < R - r (v) d = R - r

6. The angle between a tangent to a circle and the radius drawn at the point of contact is

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

7. If two circles of radii 15 cm and 2 cm touch internally, the distance between their centres is

   (i) 12 cm (ii) 15 cm (iii) 11 cm (iv) 13 cm (v) 14 cm

8. If two circles of radii 14 cm and 2 cm touch externally, the distance between their centres is

(i) 14 cm (ii) 16 cm (iii) 18 cm (iv) 17 cm (v) 15 cm

9. If two circles touch internally, the number of their common tangents is

(i) (-2) (ii) 4 (iii) 2 (iv) 0 (v) 1

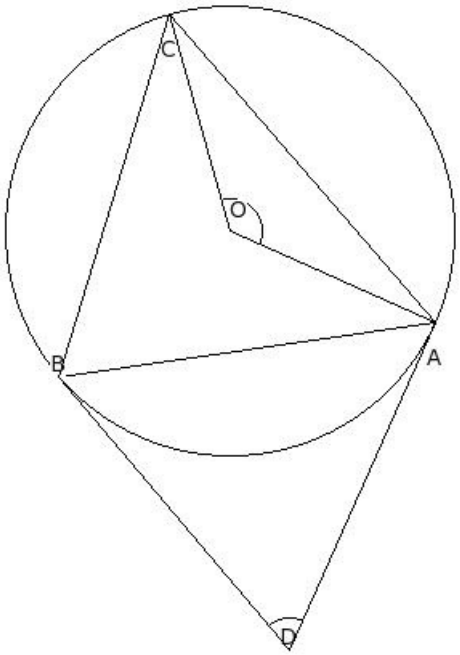
10. If two circles intersect, the number of their common tangents is

(i) 3 (ii) 4 (iii) 1 (iv) (-1) (v) 2

11. If two circles touch externally, the number of their common tangents is

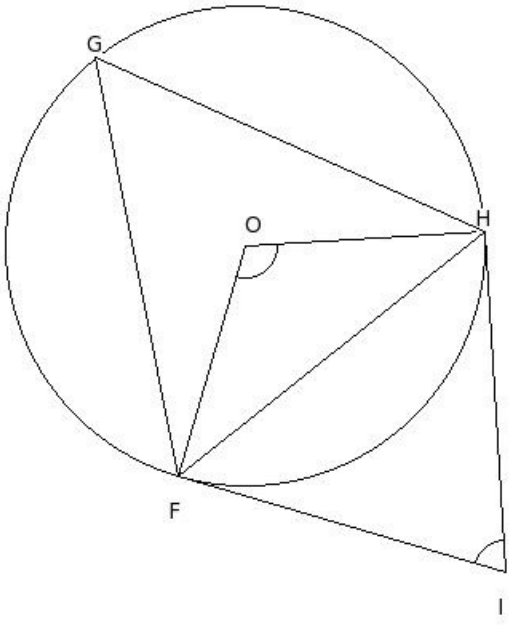
(i) 1 (ii) 3 (iii) 2 (iv) 5 (v) 4

12. O is the centre of the circumcircle of △ABC. Tangents at A and B intersect at D. If ∠ADB = 64.31° and ∠AOC = 130°, find ∠CAB



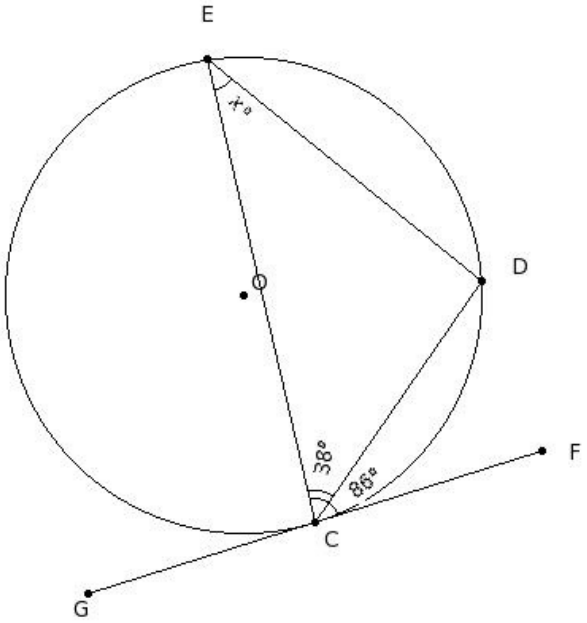
(i) 57.16° (ii) 62.16° (iii) 67.16° (iv) 87.16° (v) 72.16°

13. O is the centre of the circumcircle of △FGH. Tangents at F and H intersect at I. If ∠FIH = 70.19°, find ∠HGF



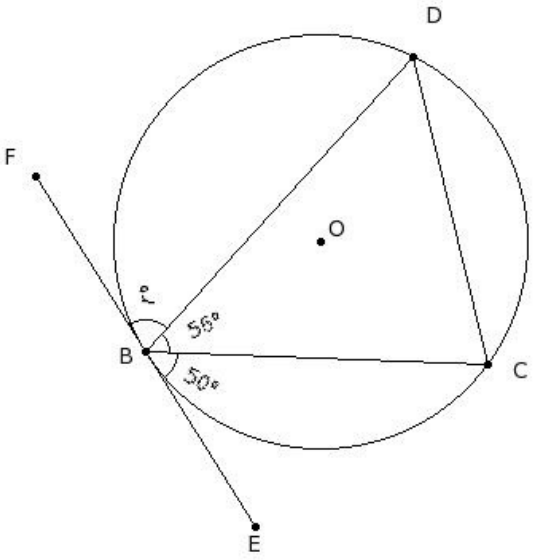
(i) 54.91° (ii) 59.91° (iii) 84.91° (iv) 64.91° (v) 69.91°

14. In the given figure, O is the centre of the circle and FG is the tangent at C. If ∠DCE = 38° and ∠FCD = 86°, find ∠CED



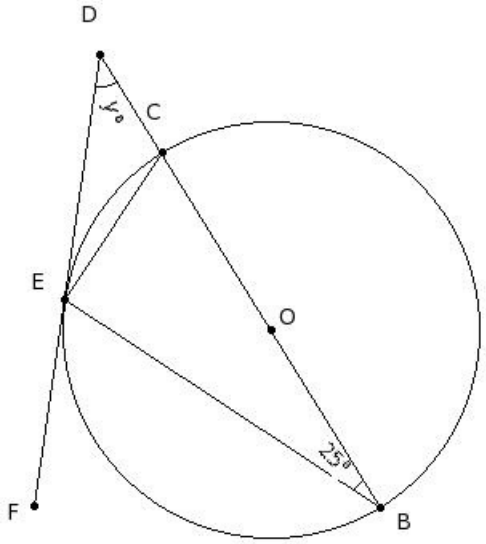
(i) 78° (ii) 48° (iii) 53° (iv) 58° (v) 63°

15. In the given figure, O is the centre of the circle and EF is the tangent at B. If ∠CBD = 56° and ∠EBC = 50°, find ∠DBF



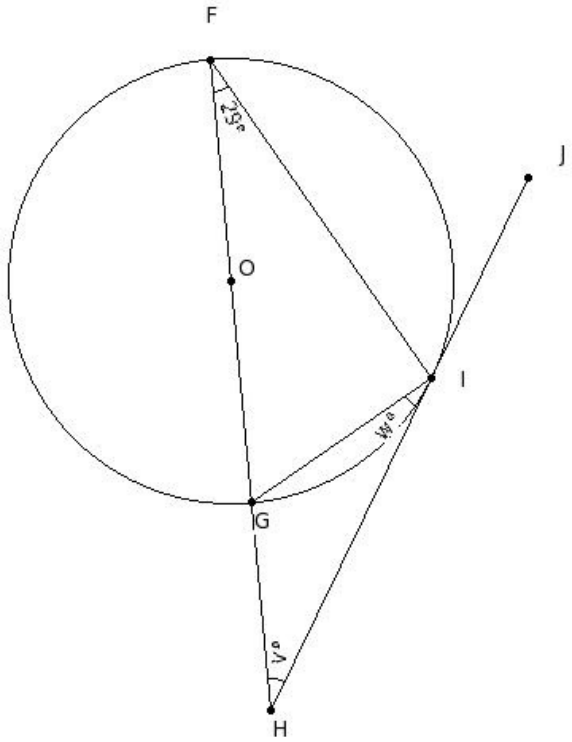
(i) 89° (ii) 84° (iii) 79° (iv) 104° (v) 74°

16. In the given figure, O is the centre of the circle and DF is the tangent at E . If ∠CBE = 25°, find ∠CDE



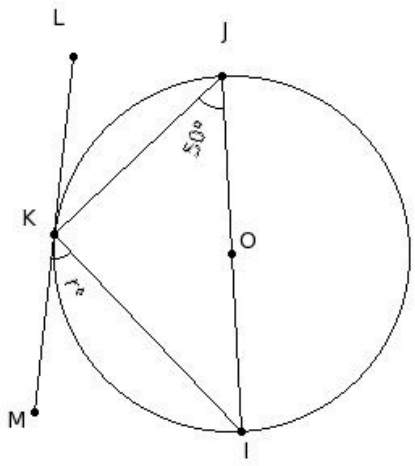
(i) 40° (ii) 45° (iii) 50° (iv) 70° (v) 55°

17. In the given figure, O is the centre of the circle and HJ is the tangent at I. If ∠GFI = 29°, find ∠GHI + ∠GIH



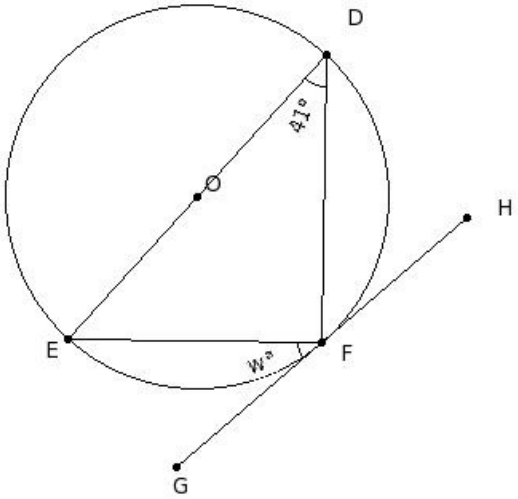
(i) 61° (ii) 71° (iii) 76° (iv) 91° (v) 66°

18. In the given figure, O is the centre of the circle and LM is the tangent at K. If ∠KJI = 50°, find ∠MKI



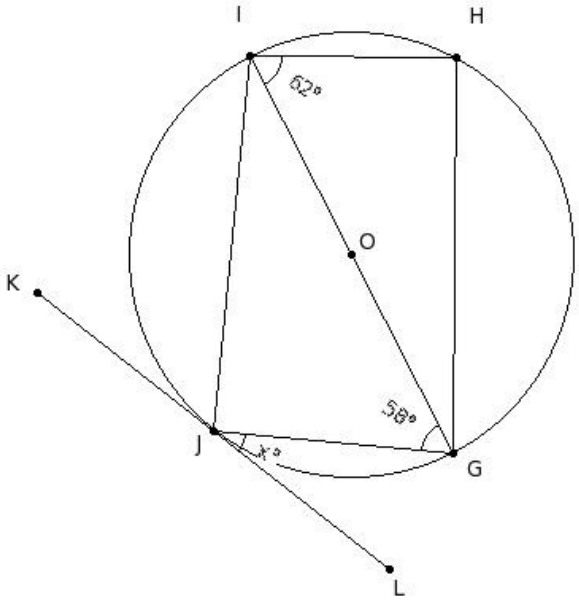
(i) 80° (ii) 50° (iii) 60° (iv) 55° (v) 65°

19. In the given figure, O is the centre of the circle and GH is the tangent at F. If ∠FDE = 41°, find ∠GFE



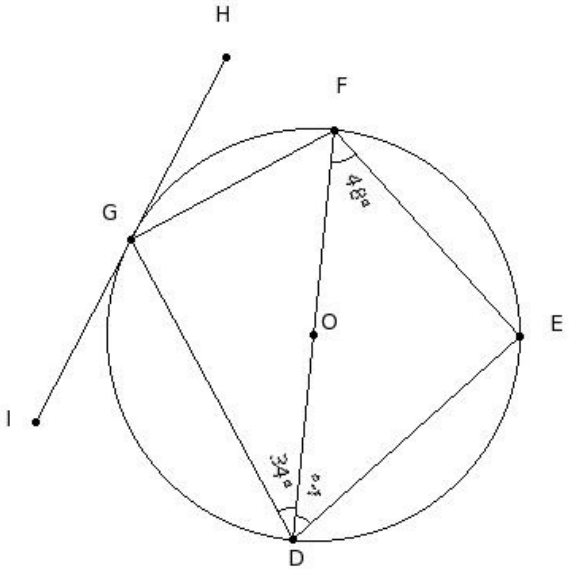
(i) 41° (ii) 46° (iii) 71° (iv) 56° (v) 51°

20. In the given figure, O is the centre of the circle and KL is the tangent at J. If ∠IGJ = 58° and ∠GIH = 62°, find ∠LJG



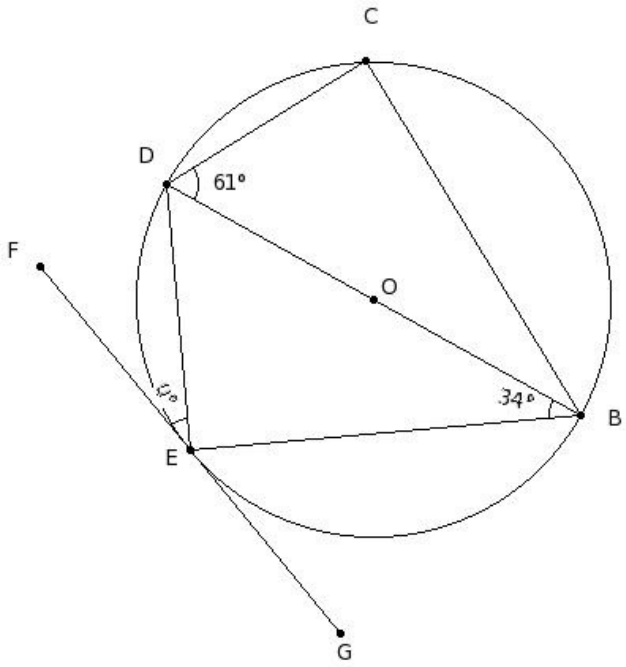
(i) 42° (ii) 62° (iii) 47° (iv) 32° (v) 37°

21. In the given figure, O is the centre of the circle and HI is the tangent at G. If ∠FDG = 34° and ∠DFE = 48°, find ∠FDE



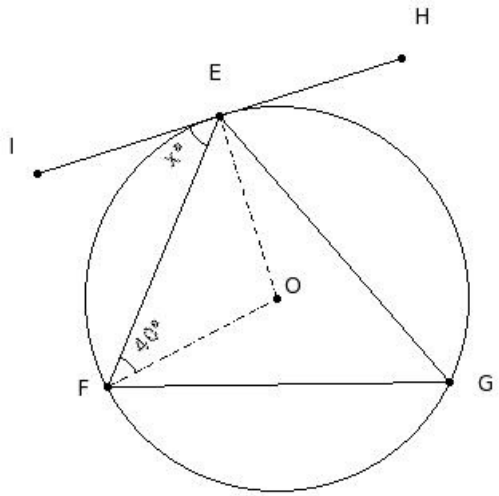
(i) 52° (ii) 47° (iii) 57° (iv) 72° (v) 42°

22. In the given figure, O is the centre of the circle and FG is the tangent at E. If ∠DBE = 34° and ∠BDC = 61°, find ∠FED



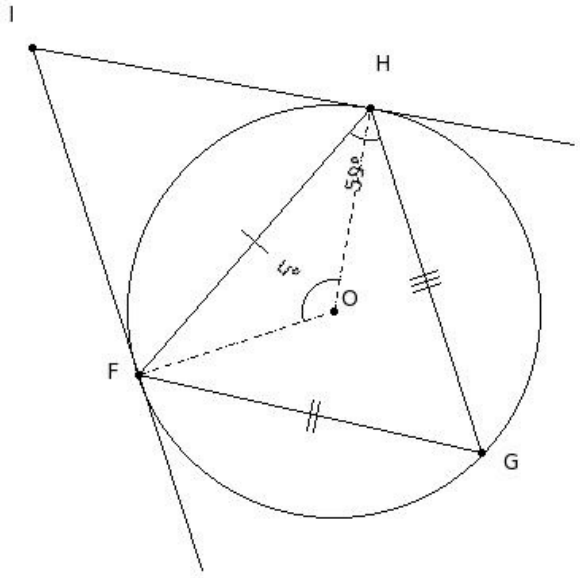
(i) 49° (ii) 44° (iii) 34° (iv) 64° (v) 39°

23. In the given figure, O is the centre of the circle and HI is the tangent at E. If ∠OFE = 40°, find ∠IEF



(i) 60° (ii) 65° (iii) 55° (iv) 80° (v) 50°

24. In the given figure, O is the centre of the circle and the tangents FI and HI meet at point I. If ∠GHF = 59°, find ∠FOH



(i) 123° (ii) 118° (iii) 148° (iv) 133° (v) 128°

25. A line which intersects the circle at two distinct points is called a

(i) segment (ii) tangent (iii) chord (iv) circumference (v) secant

26. A line which touches a circle at only one point is called a

(i) secant (ii) chord (iii) tangent (iv) semi-circle (v) segment

27. Which of the following statements are true?

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

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

28. Which of the following statements are true?

a) Atmost two common tangents can be drawn touching any two circles.
b) Atmost three common tangents can be drawn touching two circles which touch each other.
c) A maximum of four common tangents can be drawn touching any two circles.
d) Atmost one common tangent can be drawn for any two concentric circles.

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

29. Which of the following statements are true?

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

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

30. Which of the following statements are true?

a) Only two tangents can be drawn from a point outside the circle.
b) Two tangents to a circle always intersect.
c) The sides of a triangle can be tangents to a circle.
d) Atmost one tangent can be drawn through a point inside the circle.
e) Only one tangent can be drawn through a point on a circle.

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

31. Which of the following statements are true?

a) If two tangents to a circle intersect, their points of contact with the circle together with their point of intersection form an isosceles triangle.
b) If two tangents are parallel, the distance between them is equal to the diameter of the circle.
c) A line parallel to a tangent is a secant.
d) If two tangents are perpendicular, they form a right angled triangle with their points of contact with the circle and their point of intersection.
e) Two different tangents can meet at a point on the circle.

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

32. Which of the following statements are true?

a) If two circles touch each other externally, there is only one common tangent.
b) If two circles intersect, then two common tangents can be drawn.
c) There exists four common tangents for any two non-intersecting circles.
d) If two circles touch each other internally, there is only one common tangent.

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

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

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

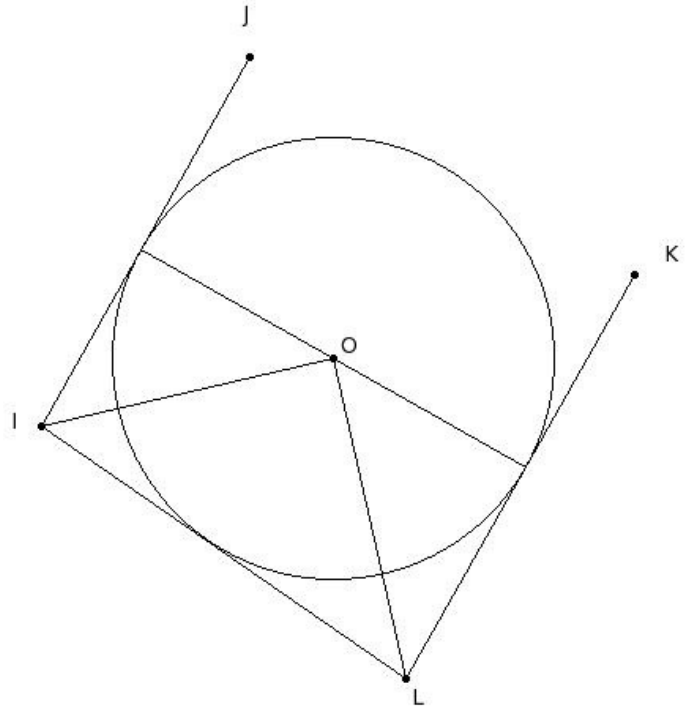
34. With the vertices of a triangle $\triangle CDE$ as centres, three circles are drawn touching each other externally. If the sides of the triangle are 12 cm , 16 cm and 14 cm , find the radii of the circles

(i) 5 cm , 12 cm & 9 cm respectively (ii) 10 cm , 12 cm & 14 cm respectively

(iii) 10 cm , 7 cm & 9 cm respectively (iv) 5 cm , 7 cm & 9 cm respectively

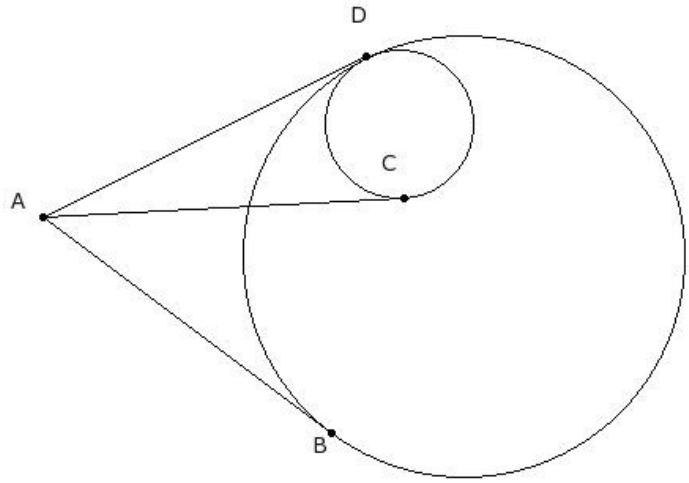
(v) 5 cm , 7 cm & 14 cm respectively

35. In the given figure, IJ and KL are parallel tangents to the circle with centre O. IL is another tangent meeting IJ and KL at I and L. Find ∠IOL



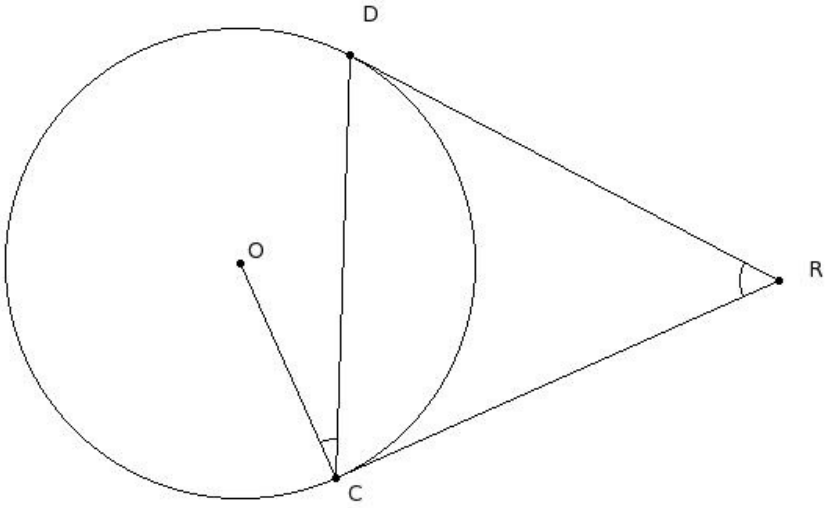
(i) 100° (ii) 95° (iii) 105° (iv) 90° (v) 120°

36. In the given figure, AD is the common tangent to the two circles. AB & AC are also tangents. Given AB = 23 cm, find AC



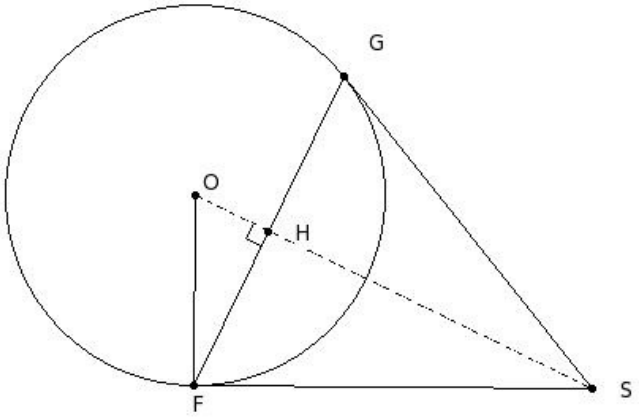
(i) 21 cm (ii) 22 cm (iii) 25 cm (iv) 23 cm (v) 24 cm

37. In the given figure, CR & DR are tangents to the circle with centre O. Given ∠C = 26°, find ∠R



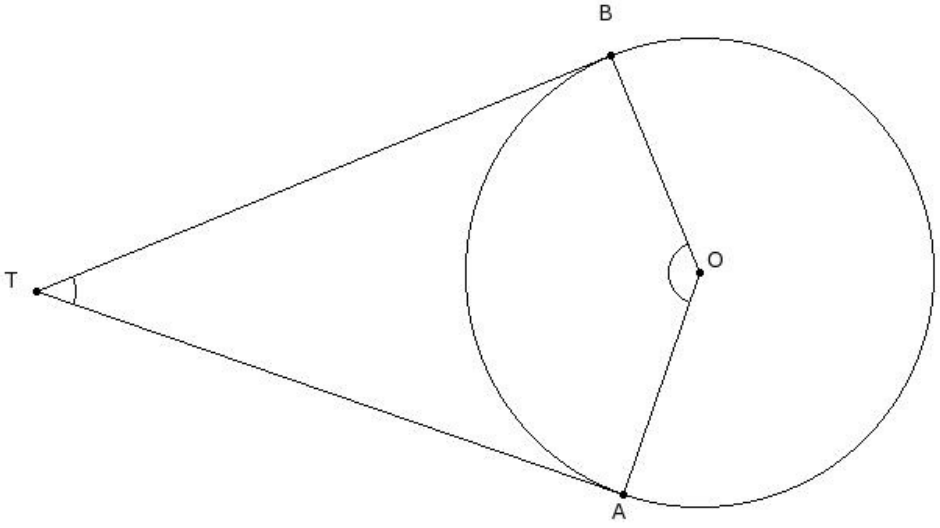
(i) 62° (ii) 82° (iii) 57° (iv) 67° (v) 52°

38. In the given figure, FS & GS are tangents to the circle with centre O. Given OF = 12 cm and FG = 22 cm, find FS



(i) 25.52 cm (ii) 28.52 cm (iii) 26.52 cm (iv) 29.52 cm (v) 27.52 cm

39. In the given figure, AT & BT are tangents to the circle with centre O. Given ∠ATB = 41°, find ∠AOB



(i) 169° (ii) 144° (iii) 139° (iv) 154° (v) 149°

40. Two concentric circles are of radii 21 cm and 9 cm. Find the length of the chord of the outer circle that touches the inner circle

(i) 36.95 cm (ii) 37.95 cm (iii) 39.95 cm (iv) 35.95 cm (v) 38.95 cm

Assignment Key

1) (ii)	2) (v)	3) (iv)	4) (i)	5) (v)	6) (iv)
7) (iv)	8) (ii)	9) (v)	10) (v)	11) (ii)	12) (i)
13) (i)	14) (ii)	15) (v)	16) (i)	17) (i)	18) (ii)
19) (i)	20) (iv)	21) (v)	22) (iii)	23) (v)	24) (ii)
25) (v)	26) (iii)	27) (iv)	28) (i)	29) (iv)	30) (iv)
31) (v)	32) (i)	33) (ii)	34) (iv)	35) (iv)	36) (iv)
37) (v)	38) (v)	39) (iii)	40) (ii)		