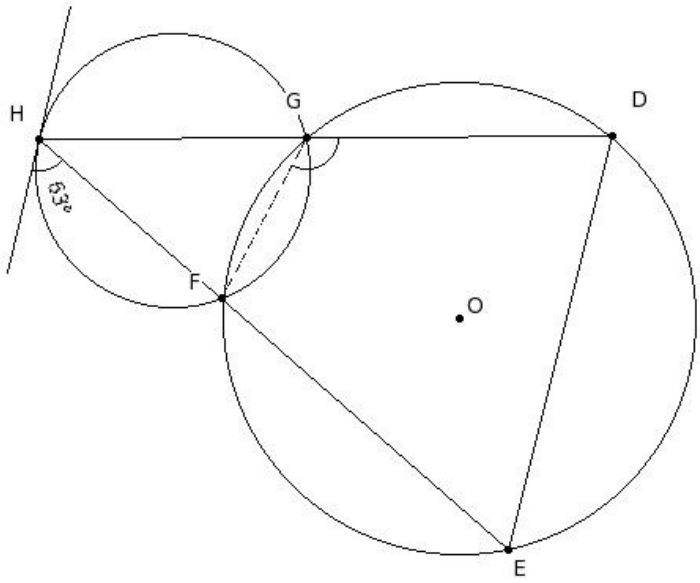
EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Tangent Properties of Circles

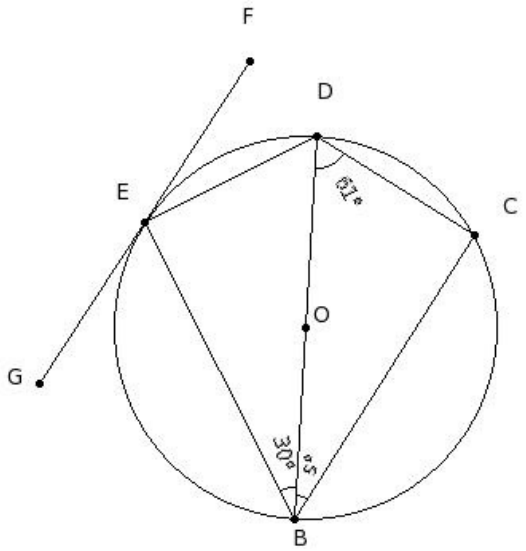
Grade : ICSE Grade X

1. In the given figure, two circles intersect at points F & G. A tangent is drawn at point H. From the same point, two lines are drawn passing through points F & G. They meet the other end of the second circle at E & D. Given ∠H = 63°, find ∠DGF



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

2. In the given figure, O is the centre of the circle and FG is the tangent at E. If ∠DBE = 30° and ∠BDC = 61°, find ∠DBC



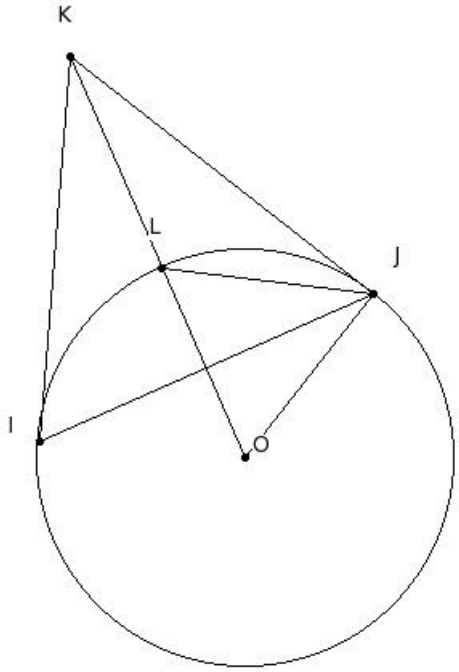
(i) 44° (ii) 39° (iii) 29° (iv) 59° (v) 34°

3. Which of the following statements are true?

a) An infinite number of diameters may be drawn for a circle.
b) Two semi-circles of a circle together make the whole circle.
c) Every circle has a unique diameter.
d) An infinite number of chords may be drawn for a circle.
e) One and only one tangent can be drawn to a circle from a point outside it.

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

4. In the given figure, KI and KJ are tangent segments to the circle with centre O. Given ∠JKL = 28°, find ∠IJL

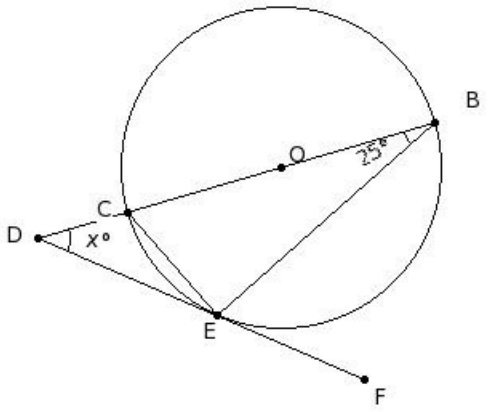


(i) 36° (ii) 31° (iii) 41° (iv) 61° (v) 46°

5. If the two radii OP and OQ of a circle are at right angles to each other, then the sector OPQ is called a

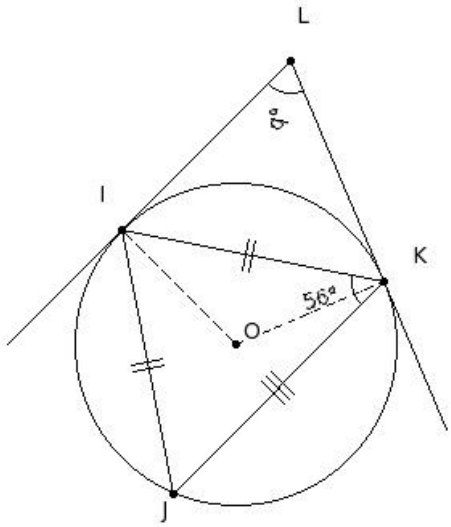
(i) segment (ii) diameter (iii) quadrant (iv) semi-circle (v) tangent

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



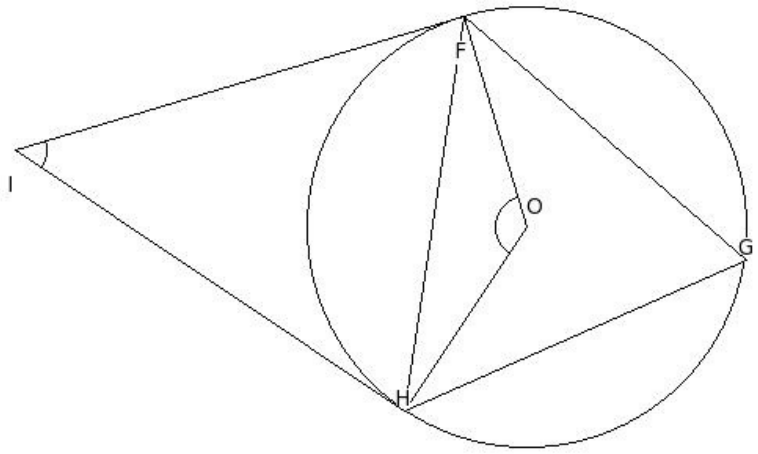
(i) 45° (ii) 40° (iii) 70° (iv) 55° (v) 50°

7. In the given figure, O is the centre of the circle and the tangents IL and KL meet at point L. If ∠JKI = 56°, find ∠KLI



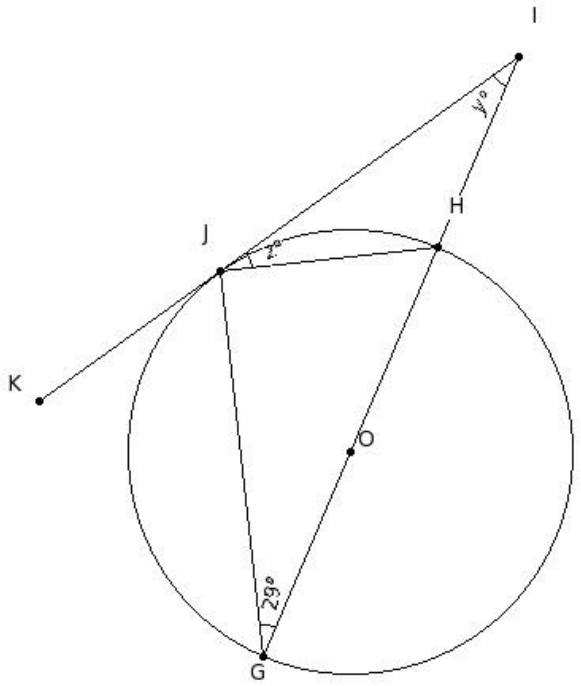
(i) 73° (ii) 98° (iii) 78° (iv) 83° (v) 68°

8. O is the centre of the circumcircle of △FGH. Tangents at F and H intersect at I. If ∠FIH = 50.35°, find ∠HGF



(i) 79.83° (ii) 69.83° (iii) 74.83° (iv) 94.83° (v) 64.83°

9. In the given figure, O is the centre of the circle and IK is the tangent at J. If ∠HGJ = 29°, find ∠HIJ + ∠HJI



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

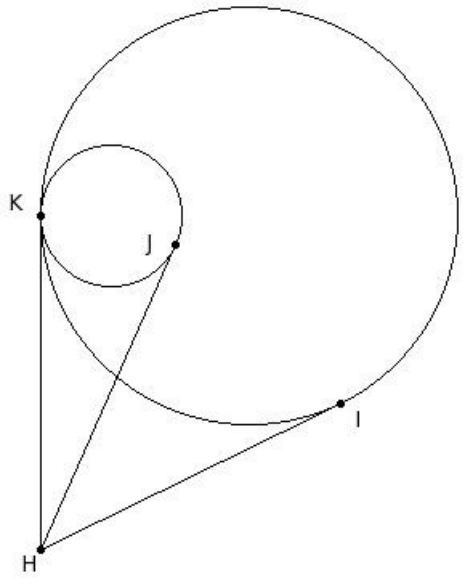
10. The distance between the centres of two circles is d.
If the radii are r_1 and r_2, the length of their transverse common tangent is

(i) None of these (ii) $\sqrt{d^2-(r_1+r_2)^2}$ (iii) $\sqrt{d^2+(r_1-r_2)^2}$ (iv) $\sqrt{d^2-(r_1-r_2)^2}$ (v) $\sqrt{d^2+(r_1+r_2)^2}$

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

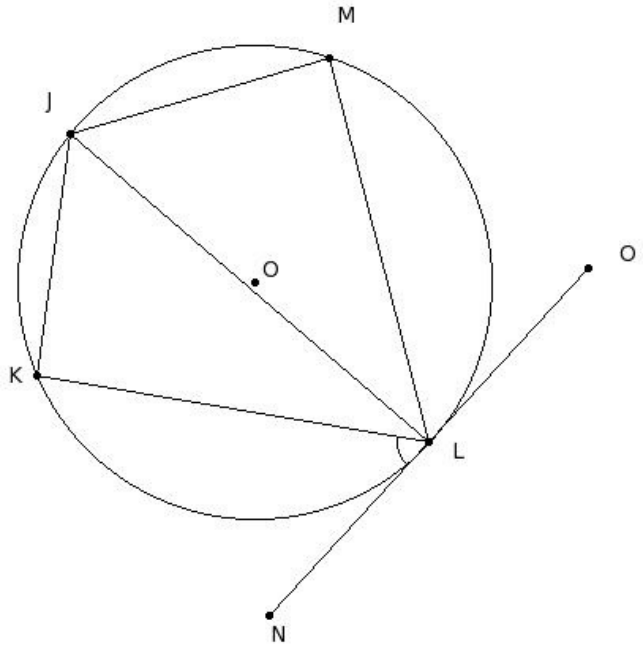
(i) 2 (ii) 1 (iii) 0 (iv) 4 (v) (-1)

12. In the given figure, HK is the common tangent to the two circles. HI & HJ are also tangents. Given HI = 21 cm, find HJ



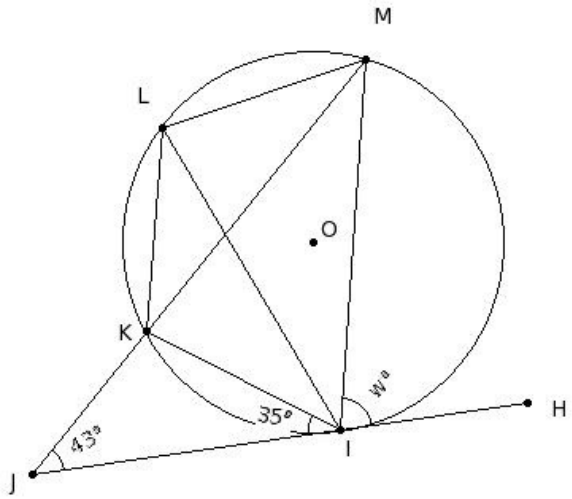
(i) 19 cm (ii) 20 cm (iii) 23 cm (iv) 21 cm (v) 22 cm

13. In the given figure, JKLM is a cyclic quadrilateral such that LJ bisects ∠MJK and NO is the tangent at L. If ∠LJK = 57°, find ∠NLK



(i) 62° (ii) 67° (iii) 87° (iv) 72° (v) 57°

14. In the given figure, O is the centre of the circle and HJ is the tangent at I. If ∠IJK = 43°,∠JIK = 35°, find ∠MIH



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

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

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

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

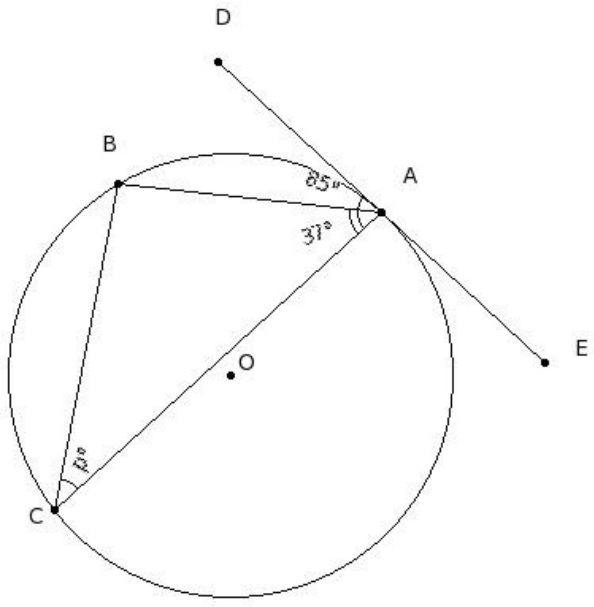
(i) tangent (ii) chord (iii) centre (iv) secant (v) quadrant

17. Which of the following statements are true?

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

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

18. In the given figure, O is the centre of the circle and DE is the tangent at A. If ∠BAC = 37° and ∠DAB = 85°, find ∠ACB



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

19. Two circles are of radii 2 cm and 5 cm. If the distance between their centres is 12 cm, what is the length of their direct common tangent?

(i) 13.62 cm (ii) 12.62 cm (iii) 10.62 cm (iv) 9.62 cm (v) 11.62 cm

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

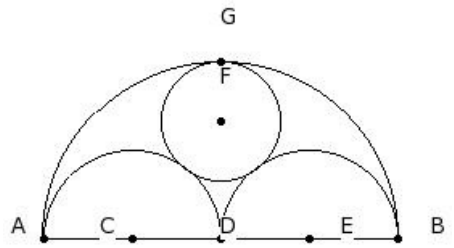
21. With the vertices of a triangle △GHI as centres, three circles are drawn touching each other externally. If the sides of the triangle are 12 cm , 18 cm and 14 cm , find the radii of the circles

(i) 9 cm , 8 cm & 10 cm respectively (ii) 4 cm , 8 cm & 10 cm respectively

(iii) 4 cm , 13 cm & 10 cm respectively (iv) 4 cm , 8 cm & 15 cm respectively

(v) 9 cm , 13 cm & 15 cm respectively

22. AB is a line segment and D is its mid-point. Three semi-circles are drawn with AD , DB and AB as diameters. C , E and D respectively are the centres of these semi-circles. A new circle is drawn touching these three semi-circles. Find its radius, given AC = 6 cm

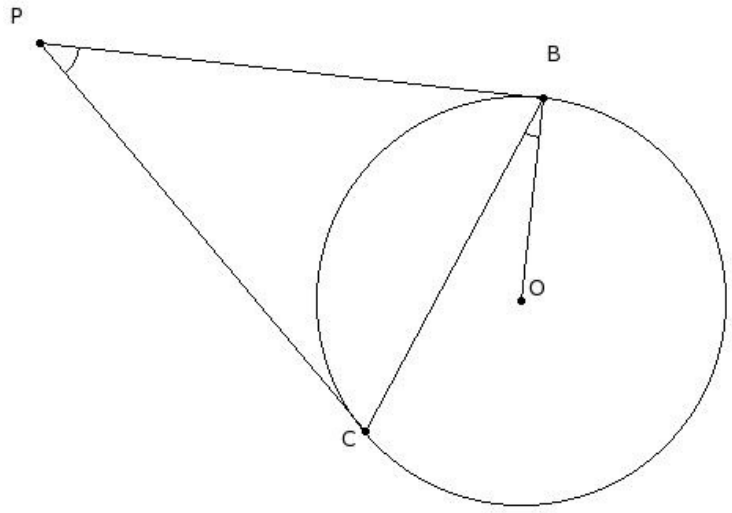


(i) 6.00 cm (ii) 2.00 cm (iii) 3.00 cm (iv) 4.00 cm (v) 5.00 cm

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

(i) 13 cm (ii) 14 cm (iii) 11 cm (iv) 10 cm (v) 12 cm

24. In the given figure, BP & CP are tangents to the circle with centre O. Given ∠B = 22°, find ∠P



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

25. 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

Assignment Key

1) (ii)	2) (iii)	3) (v)	4) (ii)	5) (iii)	6) (ii)
7) (v)	8) (v)	9) (v)	10) (ii)	11) (ii)	12) (iv)
13) (v)	14) (v)	15) (iii)	16) (i)	17) (iv)	18) (iv)
19) (v)	20) (iii)	21) (ii)	22) (iv)	23) (v)	24) (iv)
25) (iii)					