EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Tangent Properties of Circles

Grade : ICSE Grade X

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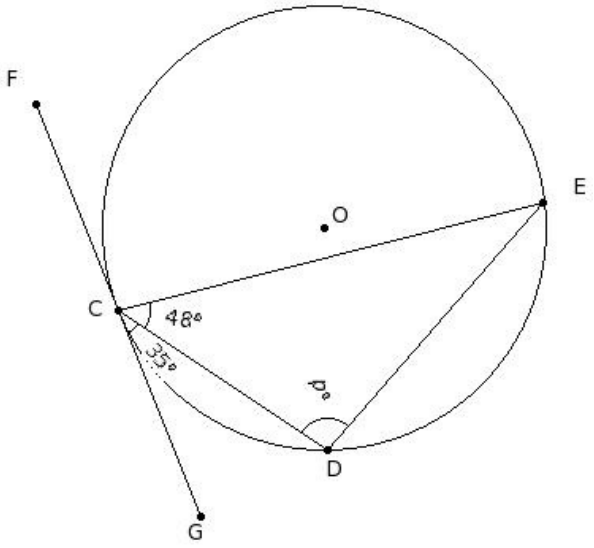
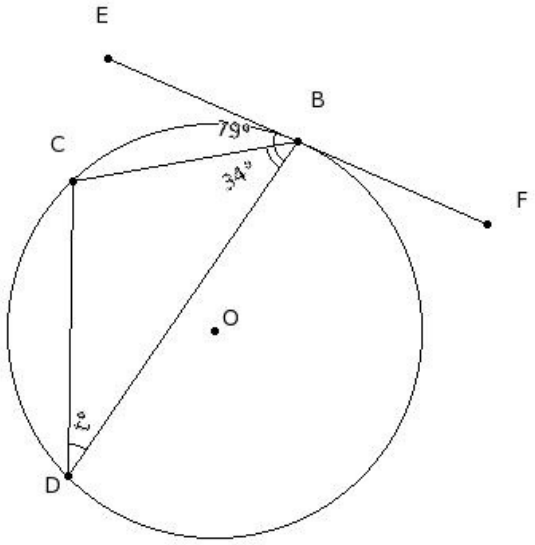
1. In the given figure, O is the centre of the circle and FG is the tangent at C. If ∠ECD = 48° and ∠DCG = 35°, find ∠EDC



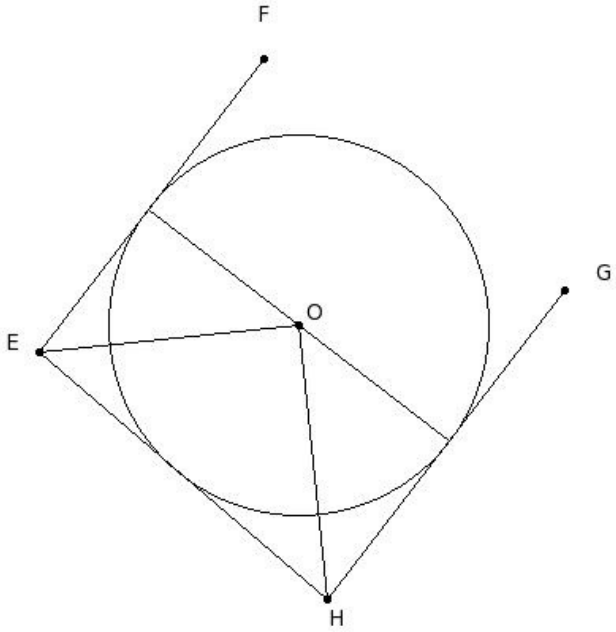
(i) 112° (ii) 102° (iii) 97° (iv) 107° (v) 127°

2. In the given figure, O is the centre of the circle and EF is the tangent at B. If ∠CBD = 34° and ∠EBC = 79°, find ∠BDC



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

3. In the given figure, EF and GH are parallel tangents to the circle with centre O. EH is another tangent meeting EF and GH at E and H. Find ∠EOH



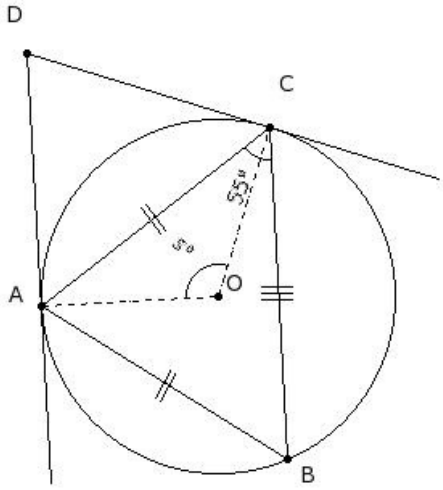
(i) 120° (ii) 100° (iii) 90° (iv) 95° (v) 105°

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

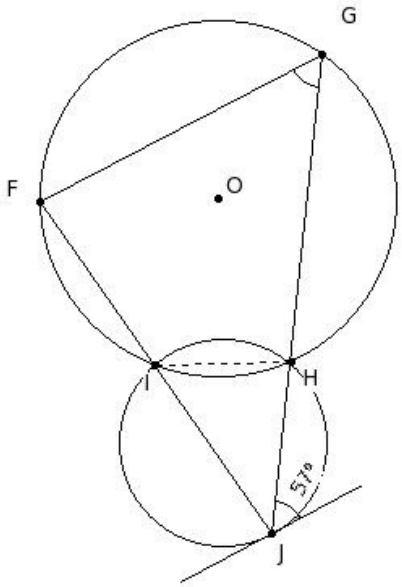
(i) {c,d,e} (ii) {a,b,e} (iii) {c,a,b} (iv) {d,b} (v) {c,a}

5. In the given figure, O is the centre of the circle and the tangents AD and CD meet at point D. If ∠BCA = 55°, find ∠AOC



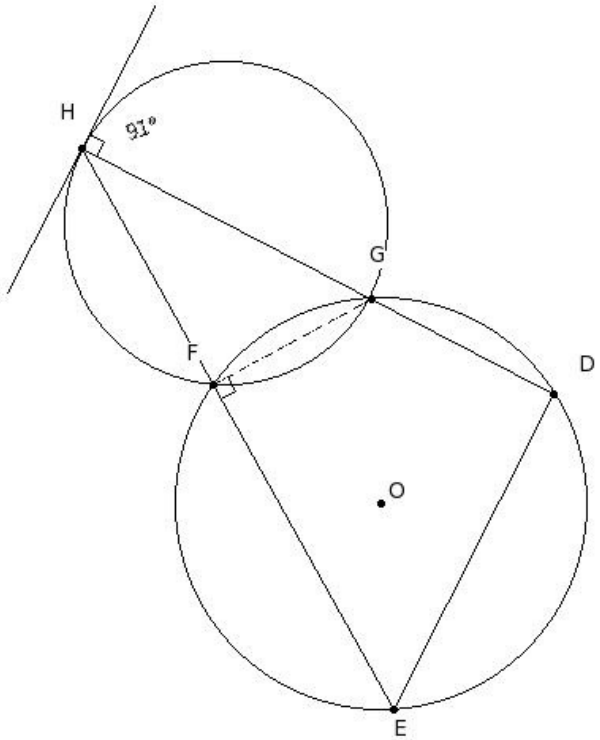
(i) 110° (ii) 140° (iii) 115° (iv) 120° (v) 125°

6. In the given figure, two circles intersect at points H & I. A tangent is drawn at point J. From the same point, two lines are drawn passing through points H & I. They meet the other end of the second circle at G & F. Given ∠J = 57°, find ∠FGH



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

7. 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 = 91°, find ∠EFG

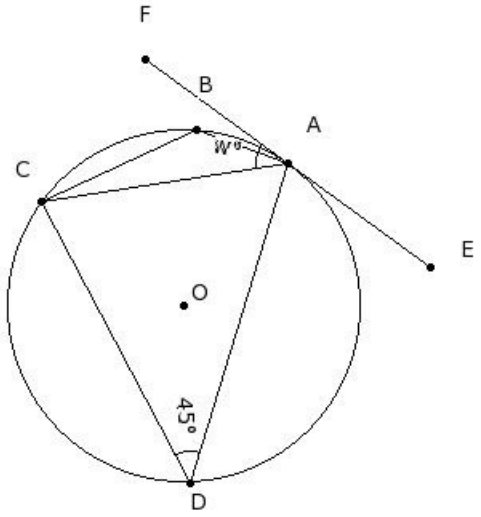


(i) 89° (ii) 104° (iii) 94° (iv) 119° (v) 99°

8. The distance between the centres of two circles is d.
If the radii are r_1 and r_2, the length of their direct 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) $\sqrt{d^2-(r_1-r_2)^2}$

9. In the given figure, O is the centre of the circle and EF is the tangent at A. If ∠ADC = 45°, find ∠FAC

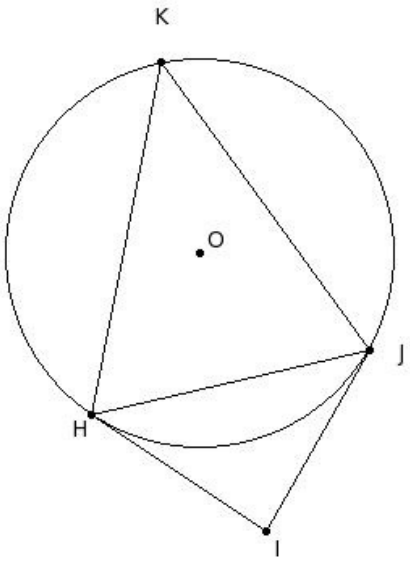


(i) 55° (ii) 60° (iii) 75° (iv) 45° (v) 50°

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

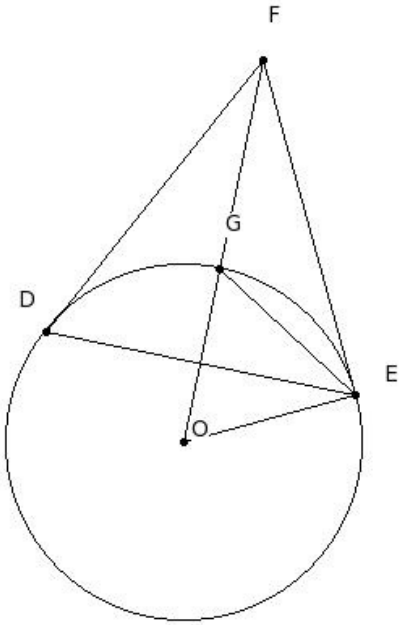
(i) None of these (ii) $\sqrt{d^2-(r_1-r_2)^2}$ (iii) $\sqrt{d^2+(r_1+r_2)^2}$ (iv) $\sqrt{d^2-(r_1+r_2)^2}$ (v) $\sqrt{d^2+(r_1-r_2)^2}$

11. O is the centre of the circle. HI and JI are tangents to the circle. If ∠JKH = 47°, find ∠HIJ



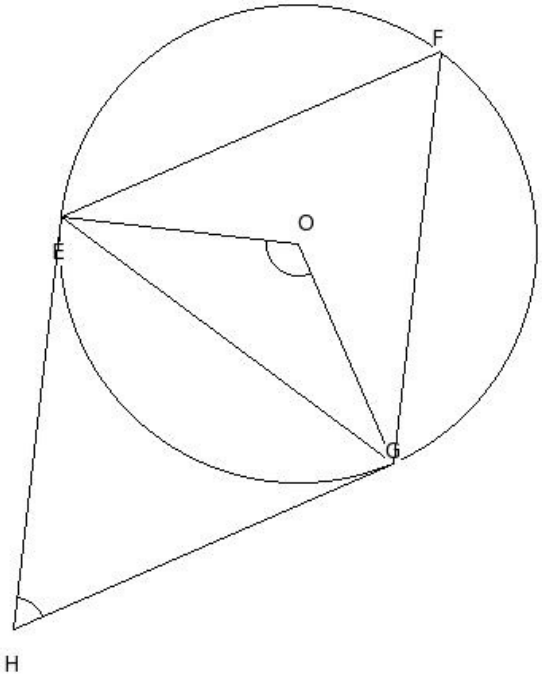
(i) 91° (ii) 116° (iii) 86° (iv) 101° (v) 96°

12. In the given figure, FD and FE are tangent segments to the circle with centre O. Given ∠EFG = 27°, find ∠DEO



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

13. O is the centre of the circumcircle of △EFG. Tangents at E and G intersect at H. If ∠EHG = 59.88°, find ∠GFE

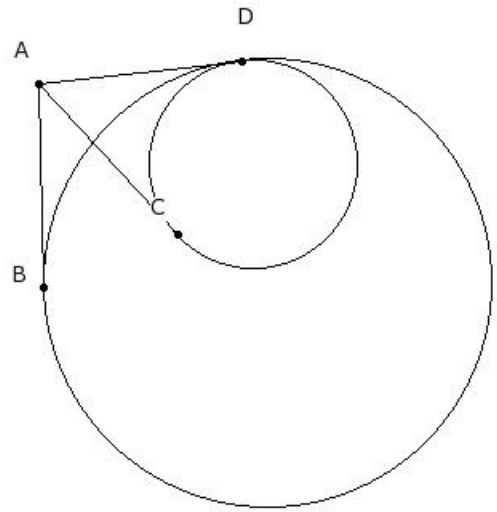


(i) 90.06° (ii) 60.06° (iii) 75.06° (iv) 70.06° (v) 65.06°

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

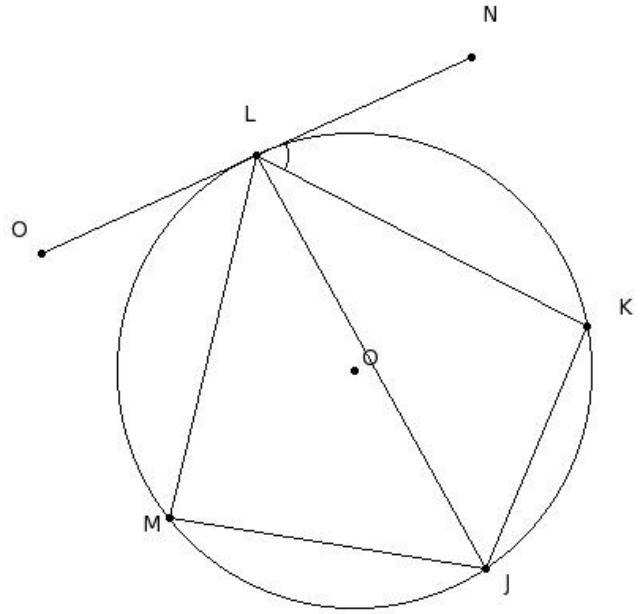
(i) quadrant (ii) centre (iii) circumference (iv) semi-circle (v) major segment

15. In the given figure, AD is the common tangent to the two circles. AB & AC are also tangents. Given AB = 13 cm, find AC



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

16. In the given figure, JKLM is a cyclic quadrilateral such that LJ bisects ∠MJK and NO is the tangent at L. If ∠LJK = 52°, find ∠NLK



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

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

(i) 2 cm , 8 cm & 8 cm respectively (ii) 2 cm , 8 cm & 13 cm respectively

(iii) 7 cm , 13 cm & 13 cm respectively (iv) 2 cm , 13 cm & 8 cm respectively

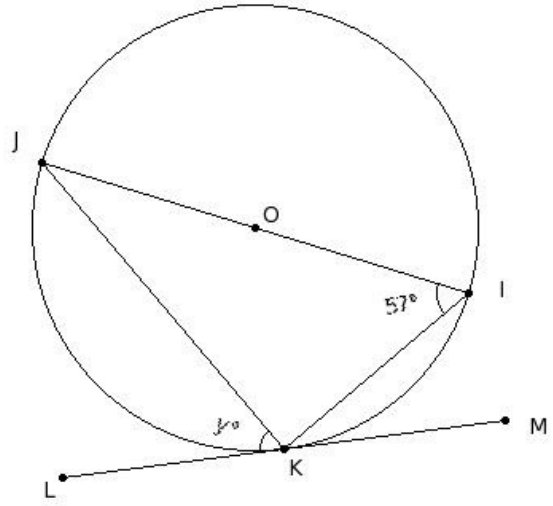
(v) 7 cm , 8 cm & 8 cm respectively

18. Which of the following statements are true?

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

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

19. In the given figure, O is the centre of the circle and LM is the tangent at K. If ∠KIJ = 57°, find ∠LKJ

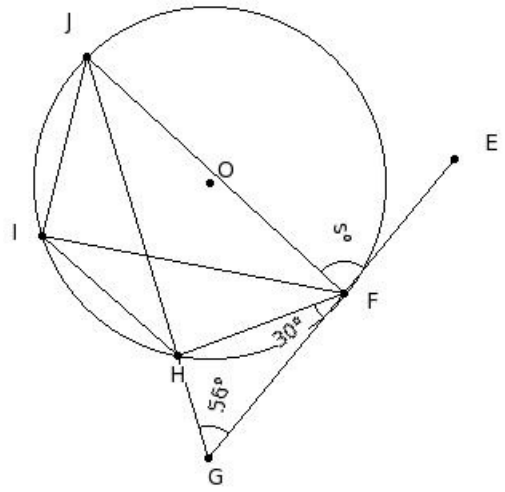


(i) 67° (ii) 62° (iii) 87° (iv) 72° (v) 57°

20. Two circles are of radii 2 cm and 4 cm. If the distance between their centres is 7 cm, what is the length of their direct common tangent?

(i) 6.71 cm (ii) 7.71 cm (iii) 8.71 cm (iv) 4.71 cm (v) 5.71 cm

21. In the given figure, O is the centre of the circle and EG is the tangent at F. If ∠FGH = 56°,∠GFH = 30°, find ∠JFE



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

22. Two circles are of radii 5 cm and 4 cm. If the distance between their centres is 13 cm, what is the length of their transverse common tangent?

(i) 8.38 cm (ii) 10.38 cm (iii) 9.38 cm (iv) 7.38 cm (v) 11.38 cm

23. 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) $d = R - r$

24. If two circles of radii 14 cm and 6 cm touch internally, the distance between their centres is

(i) 9 cm (ii) 6 cm (iii) 10 cm (iv) 8 cm (v) 7 cm

25. Which of the following statements are true?

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

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

Assignment Key

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