EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Tangent Properties of Circles

Grade : ICSE Grade X

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

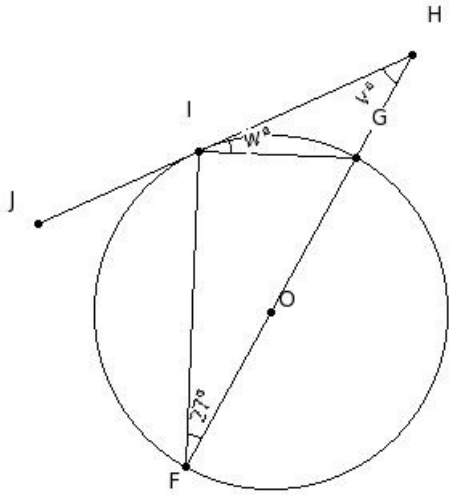
2. A line which intersects the circle at two distinct points is called a

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

3. Two circles with equal radii are

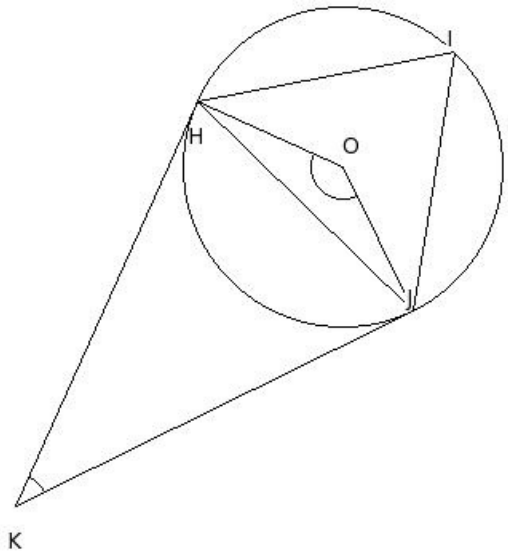
(i) concentric (ii) congruent (iii) only similar but not congruent (iv) not similar

4. In the given figure, O is the centre of the circle and HJ is the tangent at I. If ∠GFI = 27°, find ∠GHI + ∠GIH



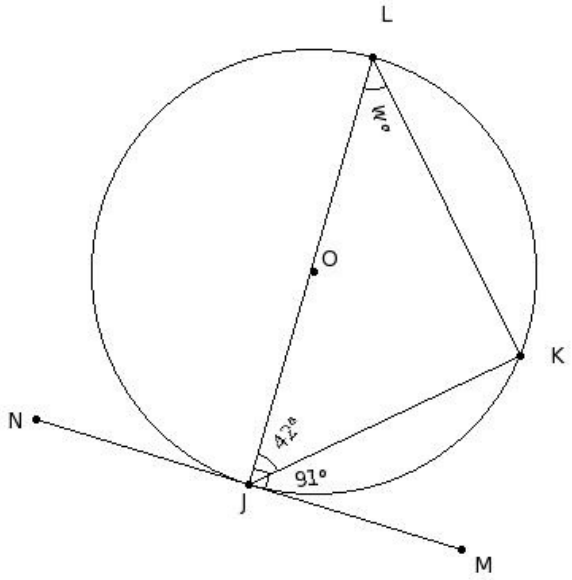
(i) 73° (ii) 93° (iii) 63° (iv) 68° (v) 78°

5. O is the centre of the circumcircle of △HIJ. Tangents at H and J intersect at K. If ∠HKJ = 39.64°, find ∠JIH



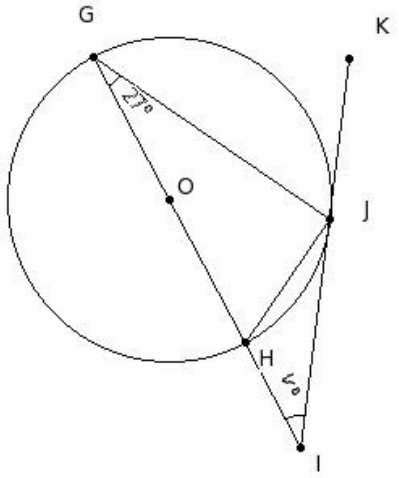
(i) 75.18° (ii) 100.18° (iii) 70.18° (iv) 85.18° (v) 80.18°

6. In the given figure, O is the centre of the circle and MN is the tangent at J. If ∠KJL = 42° and ∠MJK = 91°, find ∠JLK



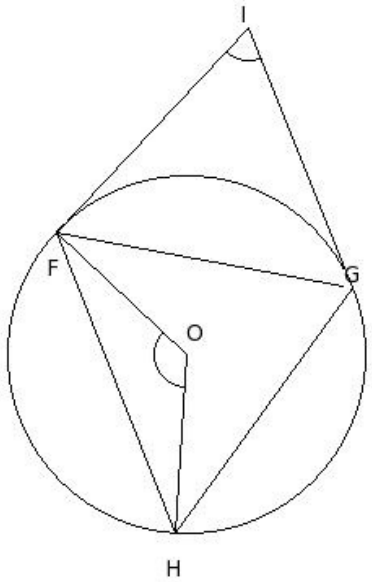
(i) 49° (ii) 54° (iii) 64° (iv) 59° (v) 79°

7. In the given figure, O is the centre of the circle and IK is the tangent at J . If ∠HGJ = 27°, find ∠HIJ



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

8. O is the centre of the circumcircle of △FGH. Tangents at F and G intersect at I. If ∠FIG = 64.92° and ∠FOH = 130°, find ∠HFG



(i) 57.46° (ii) 62.46° (iii) 72.46° (iv) 67.46° (v) 87.46°

9. Two circles are of radii 3 cm and 3 cm. If the distance between their centres is 12 cm, what is the length of their transverse common tangent?

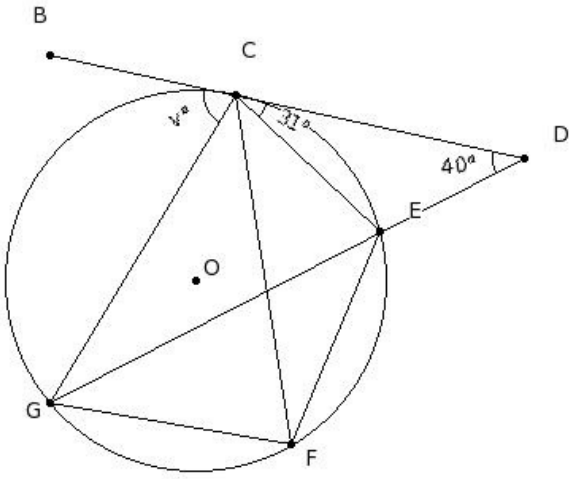
(i) 12.39 cm (ii) 9.39 cm (iii) 10.39 cm (iv) 8.39 cm (v) 11.39 cm

10. Which of the following statements are true?

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

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

11. In the given figure, O is the centre of the circle and BD is the tangent at C. If ∠CDE = 40°,∠DCE = 31°, find ∠GCB



(i) 101° (ii) 86° (iii) 71° (iv) 81° (v) 76°

12. 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

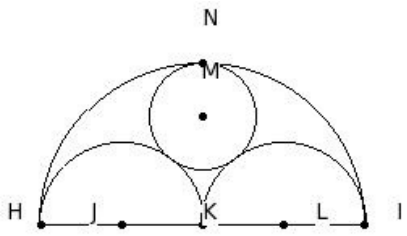
(i) $\sqrt{d^2+(r_1+r_2)^2}$ (ii) $\sqrt{d^2-(r_1-r_2)^2}$ (iii) None of these (iv) $\sqrt{d^2-(r_1+r_2)^2}$ (v) $\sqrt{d^2+(r_1-r_2)^2}$

13. 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.

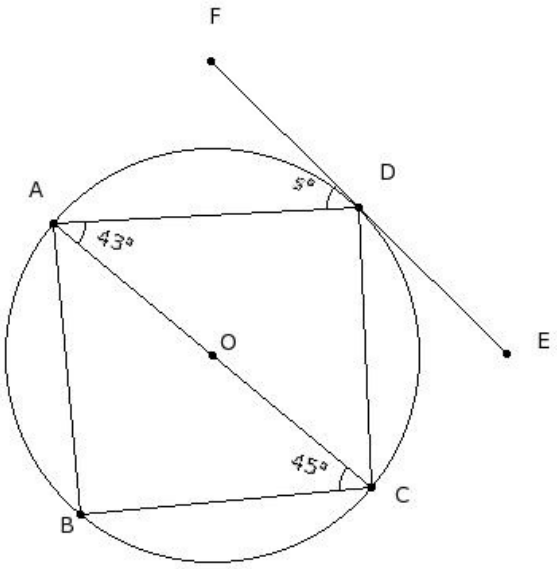
(i) {b,c} (ii) {a,c,b} (iii) {a,b} (iv) {a,d,b} (v) {d,c}

14. HI is a line segment and K is its mid-point. Three semi-circles are drawn with HK , KI and HI as diameters. J , L and K respectively are the centres of these semi-circles. A new circle is drawn touching these three semi-circles. Find its radius, given HJ = 5 cm



(i) 1.33 cm (ii) 2.33 cm (iii) 3.33 cm (iv) 4.33 cm (v) 5.33 cm

15. In the given figure, O is the centre of the circle and EF is the tangent at D. If ∠CAD = 43° and ∠ACB = 45°, find ∠FDA



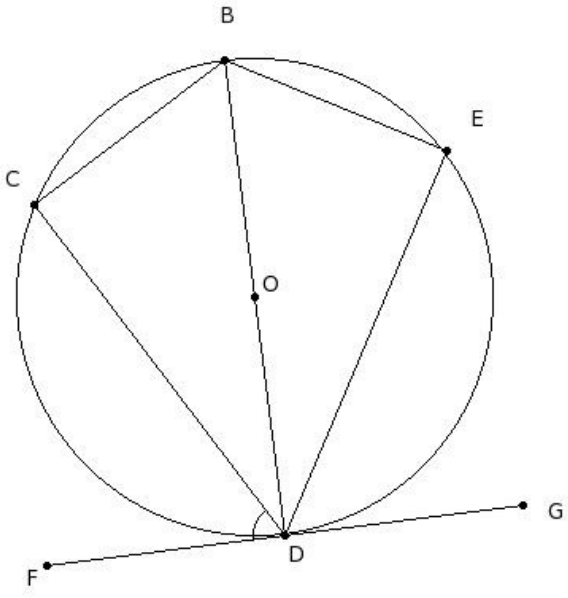
(i) 52° (ii) 57° (iii) 62° (iv) 47° (v) 77°

16. Which of the following statements are true?

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

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

17. In the given figure, BCDE is a cyclic quadrilateral such that DB bisects ∠EBC and FG is the tangent at D. If ∠DBC = 60°, find ∠FDC

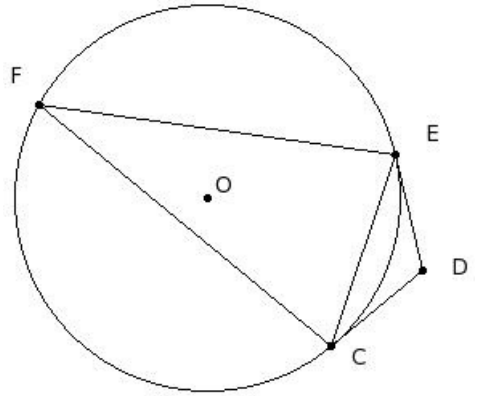


(i) 60° (ii) 90° (iii) 65° (iv) 75° (v) 70°

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

(i) 1 (ii) 3 (iii) 0 (iv) 5 (v) 2

19. O is the centre of the circle. CD and ED are tangents to the circle. If ∠EFC = 31.5°, find ∠CDE

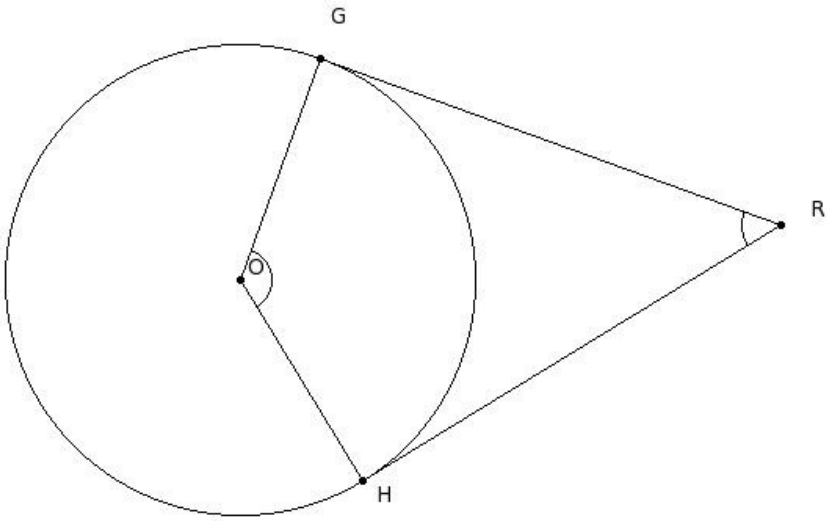


(i) 147° (ii) 117° (iii) 132° (iv) 122° (v) 127°

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

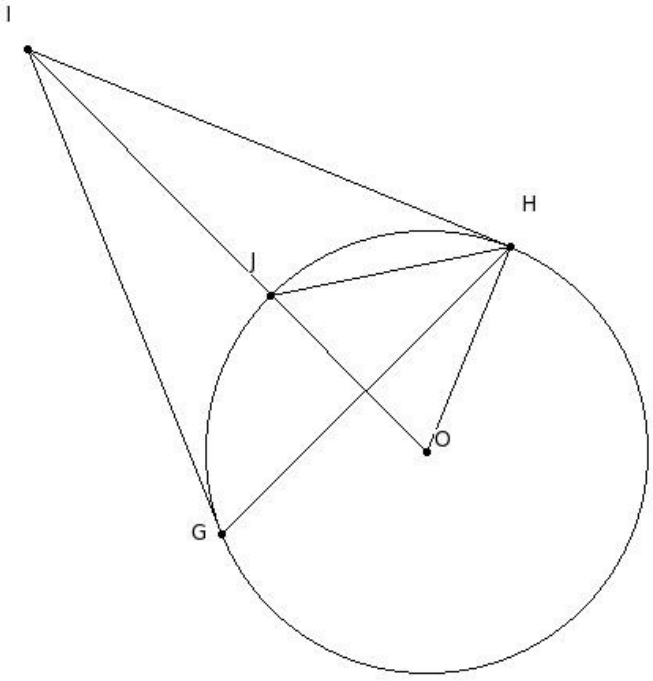
(i) $d < R - r$ (ii) $d < R + r$ (iii) $d = R + r$ (iv) $d > R - r$ (v) $d = R - r$

21. In the given figure, GR & HR are tangents to the circle with centre O. Given ∠GRH = 51°, find ∠GOH



(i) 139° (ii) 134° (iii) 144° (iv) 129° (v) 159°

22. In the given figure, IG and IH are tangent segments to the circle with centre O. Given ∠HIJ = 23°, find ∠GHO

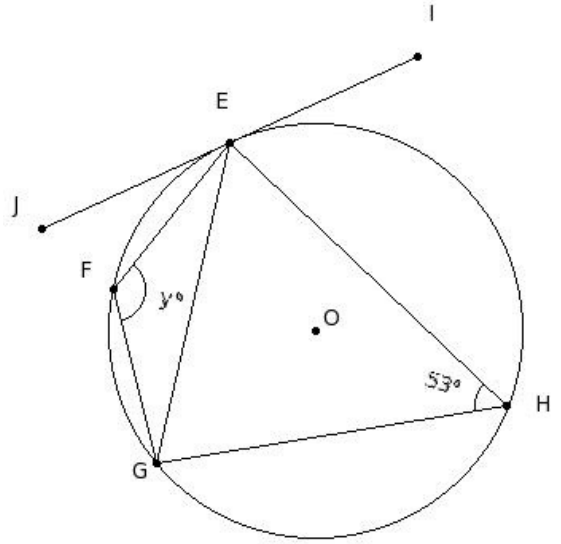


(i) 33° (ii) 53° (iii) 28° (iv) 23° (v) 38°

23. Two circles are of radii 3 cm and 1 cm. If the distance between their centres is 8 cm, what is the length of their direct common tangent?

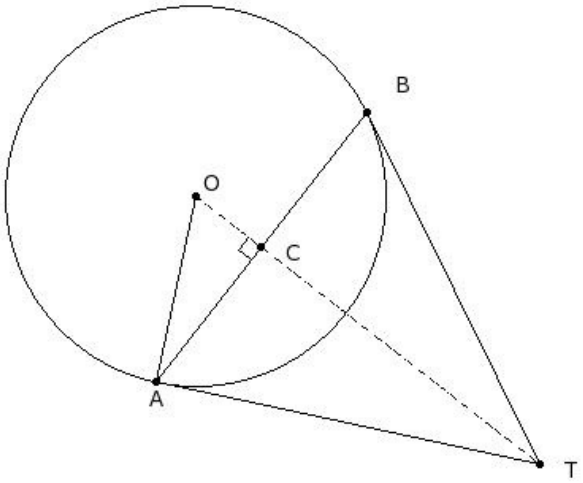
(i) 7.75 cm (ii) 8.75 cm (iii) 6.75 cm (iv) 9.75 cm (v) 5.75 cm

24. In the given figure, O is the centre of the circle and IJ is the tangent at E. If ∠EHG = 53°, find ∠EFG



(i) 157° (ii) 142° (iii) 137° (iv) 127° (v) 132°

25. In the given figure, AT & BT are tangents to the circle with centre O. Given OA = 12 cm and AB = 22 cm, find AT



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

Assignment Key

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