EduSahara™ Learning Center Assignment

Grade : Class X, SSC
Chapter : Tangents and Secants to a Circle
Name : Tangent Properties

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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) Every circle has a unique diameter
   d) A line can meet a circle atmost at two points
   e) A circle consists of an infinite number of points

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

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2. Which of the following statements are true?
   a) Every circle has a unique diameter
   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) 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) {b,e,c} (ii) {b,e} (iii) {d,a,c} (iv) {a,c} (v) {c,e}

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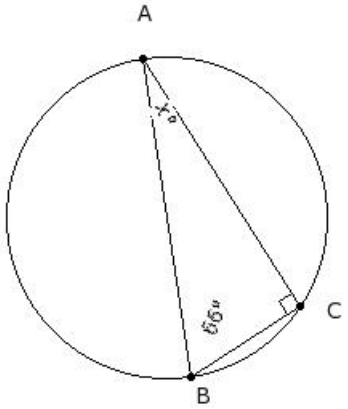
3. Find the missing angle in the following figure?



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

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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) $l = \sqrt{(d^2+r^2)}$

   (ii) $d = \sqrt{(l^2-r^2)}$

   (iii) $r = \sqrt{(l^2+d^2)}$

   (iv) $l = \sqrt{(d^2-r^2)}$

   (v) $d = \sqrt{(l^2+r^2)}$

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) $d < R + r$

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

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

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7. If two circles of radii 13 cm and 2 cm touch internally, the distance between their centres is

(i) 9 cm (ii) 10 cm (iii) 13 cm (iv) 11 cm (v) 12 cm

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8. If two circles of radii 15 cm and 6 cm touch externally, the distance between their centres is

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

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

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

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

(i) 0 (ii) 1 (iii) 2 (iv) 3 (v) 4

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

(i) 0 (ii) 3 (iii) 2 (iv) 5 (v) 4

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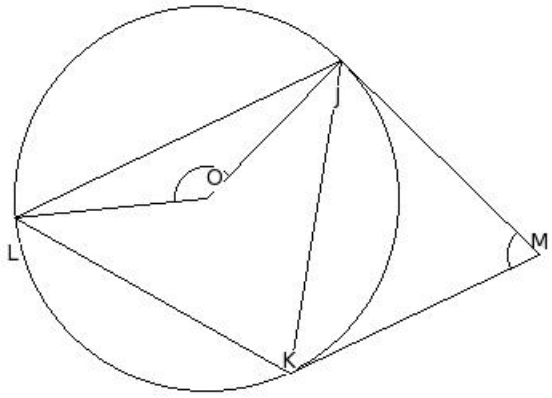
12. O is the centre of the circumcircle of △JKL. Tangents at J and K intersect at M. If ∠JMK = 69.68° and ∠JOL = 140°, find ∠LJK



(i) 54.84° (ii) 84.84° (iii) 69.84° (iv) 64.84° (v) 59.84°

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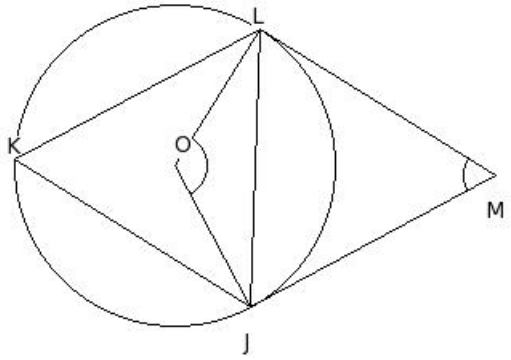
13. O is the centre of the circumcircle of △JKL. Tangents at J and L intersect at M. If ∠JML = 59.94°, find ∠LKJ



(i) 65.03° (ii) 75.03° (iii) 70.03° (iv) 90.03° (v) 60.03°

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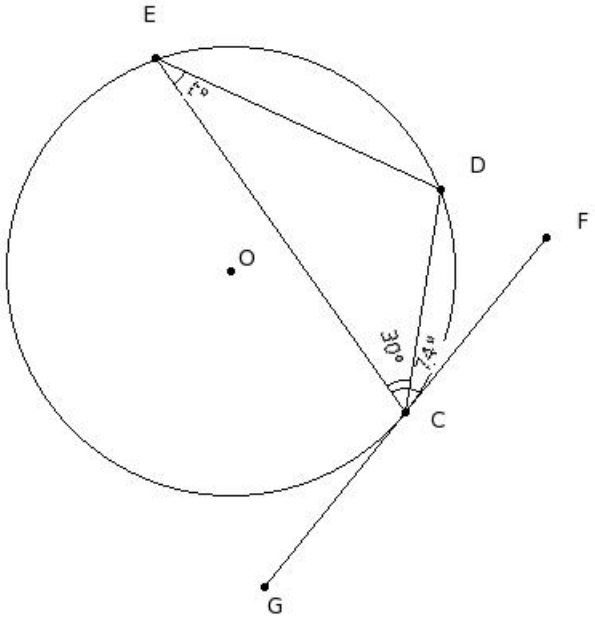
14. In the given figure, O is the centre of the circle and FG is the tangent at C. If ∠DCE = 30° and ∠FCD = 74°, find ∠CED



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

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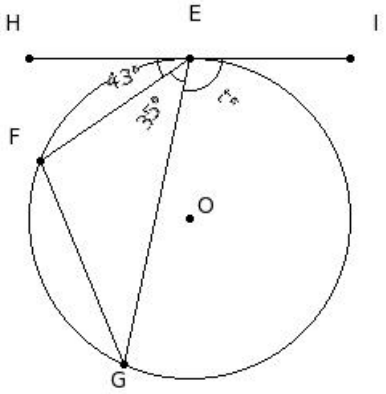
15. In the given figure, O is the centre of the circle and HI is the tangent at E. If ∠FEG = 35° and ∠HEF = 43°, find ∠GEI



(i) 102° (ii) 112° (iii) 132° (iv) 107° (v) 117°

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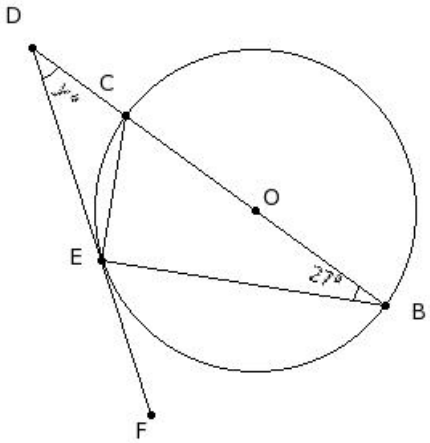
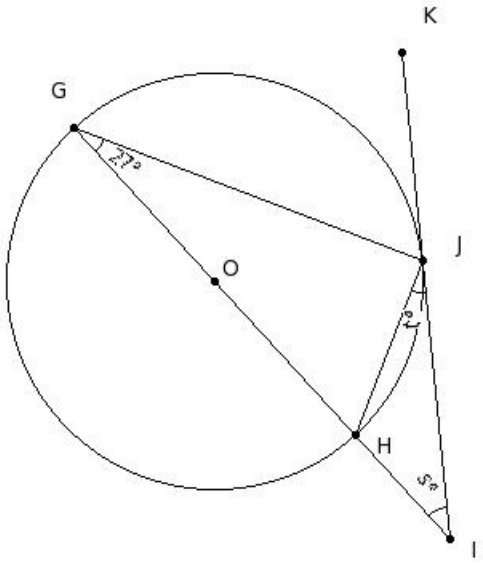
16. In the given figure, O is the centre of the circle and DF is the tangent at E . If ∠CBE = 27°, find ∠CDE



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

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



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

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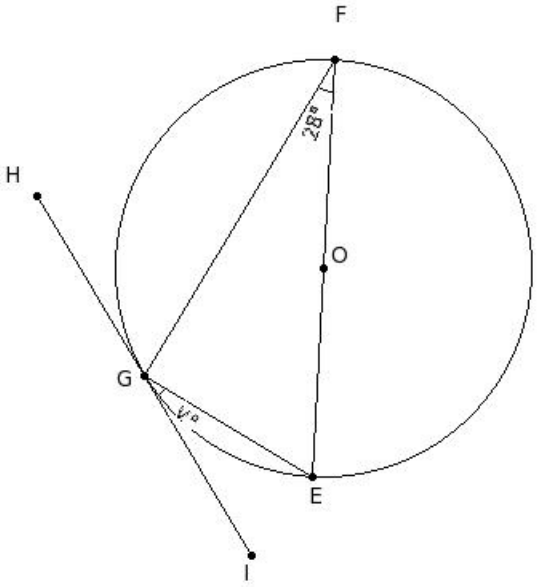
18. In the given figure, O is the centre of the circle and HI is the tangent at G. If ∠GFE = 28°, find ∠IGE



(i) 43° (ii) 28° (iii) 58° (iv) 33° (v) 38°

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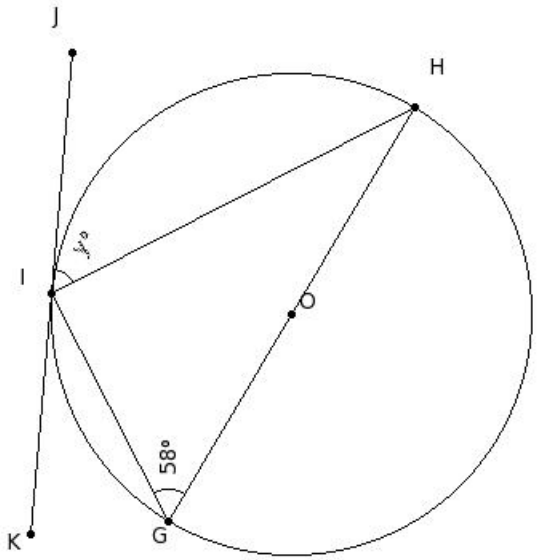
19. In the given figure, O is the centre of the circle and JK is the tangent at I. If ∠IGH = 58°, find ∠JIH



(i) 68° (ii) 88° (iii) 58° (iv) 73° (v) 63°

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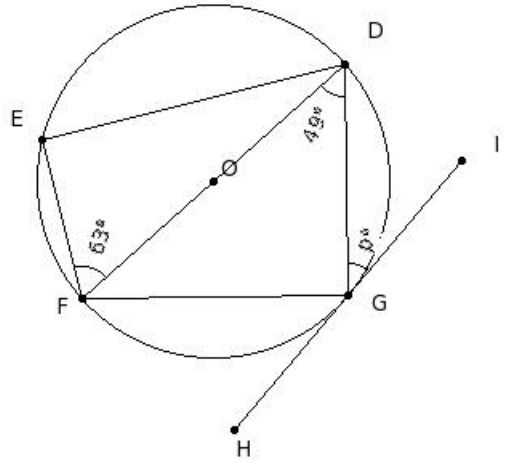
20. In the given figure, O is the centre of the circle and HI is the tangent at G. If ∠FDG = 49° and ∠DFE = 63°, find ∠IGD



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

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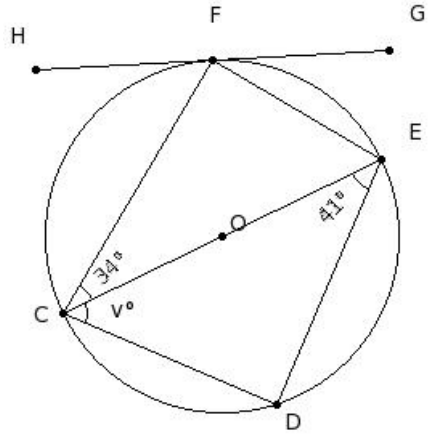
21. In the given figure, O is the centre of the circle and GH is the tangent at F. If ∠ECF = 34° and ∠CED = 41°, find ∠ECD



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

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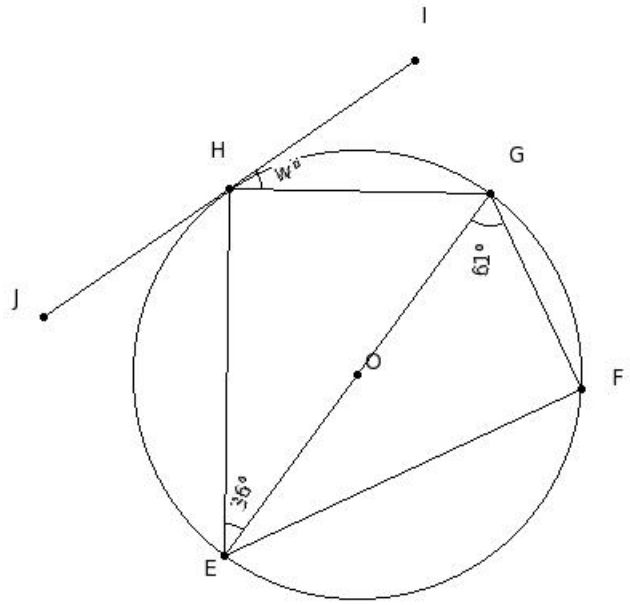
22. In the given figure, O is the centre of the circle and IJ is the tangent at H. If ∠GEH = 36° and ∠EGF = 61°, find ∠IHG



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

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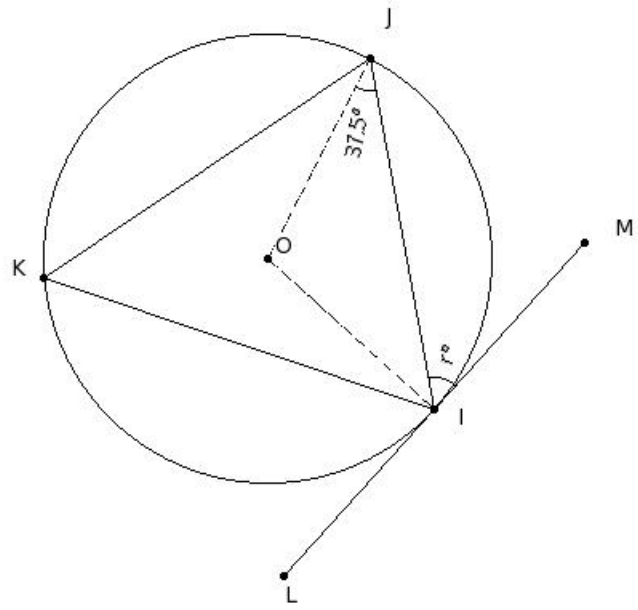
23. In the given figure, O is the centre of the circle and LM is the tangent at I. If ∠OJI = 37.5°, find ∠MIJ



(i) 52.5° (ii) 62.5° (iii) 67.5° (iv) 82.5° (v) 57.5°

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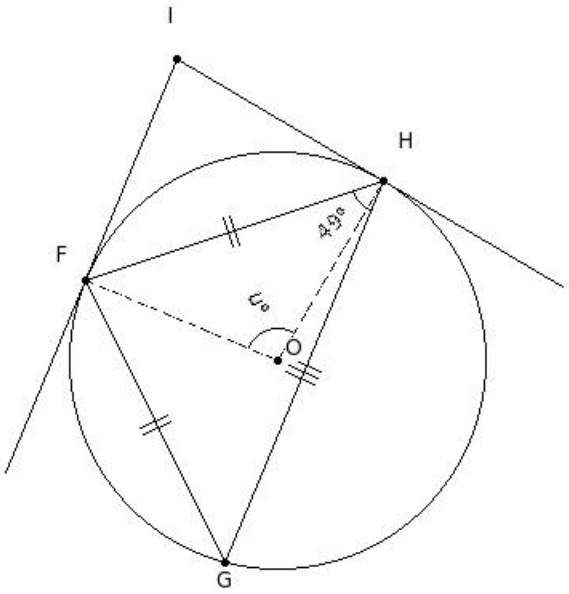
24. In the given figure, O is the centre of the circle and the tangents FI and HI meet at point I. If ∠GHF = 49°, find ∠FOH



(i) 113° (ii) 108° (iii) 128° (iv) 98° (v) 103°

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

(i) secant (ii) diameter (iii) circumference (iv) chord (v) major segment

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

(i) circumference (ii) diameter (iii) secant (iv) centre (v) tangent

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27. Which of the following statements are true?

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

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

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28. Which of the following statements are true?

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

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

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29. Which of the following statements are true?

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

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

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30. Which of the following statements are true?

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

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

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31. Which of the following statements are true?

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

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

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32. Which of the following statements are true?

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

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

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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 internally, the distance between their centres is the difference of their radii
c) If two circles touch externally, the square of the distance between their centres is the sum 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 square of the distance between their centres is the difference of the squares of their radii
f) If two circles touch externally, the distance between their centres is the sum of their radii

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

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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 , 18 cm and 14 cm , find the radii of the circles

(i) 4 cm , 13 cm & 10 cm respectively

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

(iii) 4 cm , 8 cm & 15 cm respectively

(iv) 4 cm , 8 cm & 10 cm respectively

(v) 9 cm , 8 cm & 10 cm respectively

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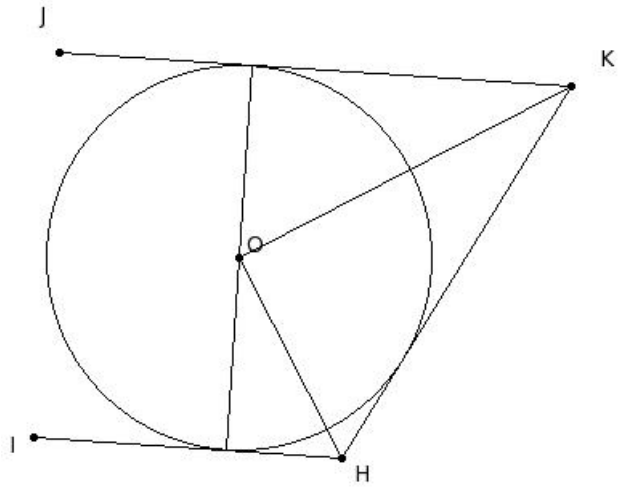
35. In the given figure, HI and JK are parallel tangents to the circle with centre O. HK is another tangent meeting HI and JK at H and K. Find $\angle HOK$



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

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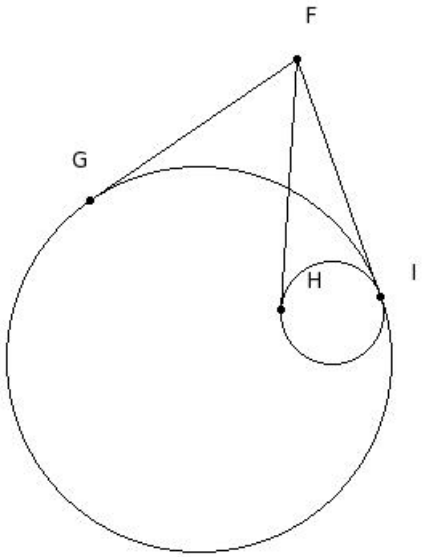
36. In the given figure, FI is the common tangent to the two circles. FG & FH are also tangents. Given FG = 16 cm, find FH



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

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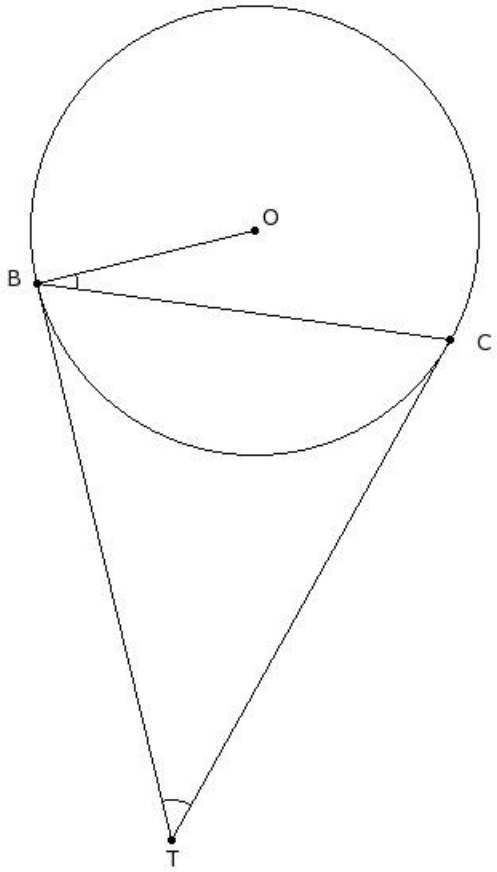
37. In the given figure, BT & CT are tangents to the circle with centre O. Given ∠T = 42°, find ∠B



(i) 26° (ii) 36° (iii) 21° (iv) 31° (v) 51°

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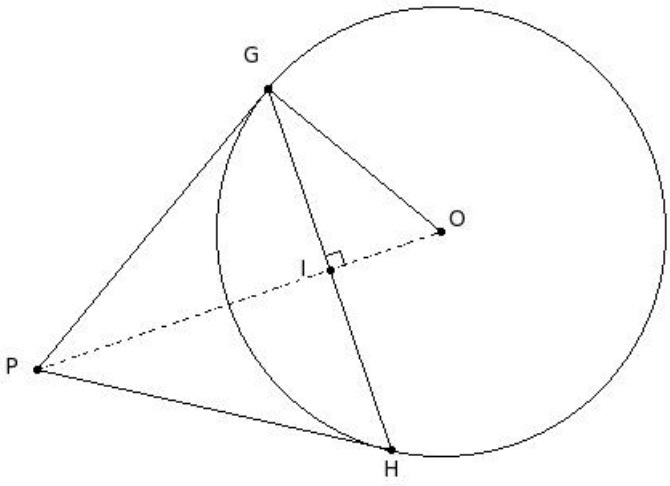
38. In the given figure, GP & HP are tangents to the circle with centre O. Given OG = 14 cm and GH = 24 cm, find GP



(i) 23.30 cm (ii) 21.30 cm (iii) 25.30 cm (iv) 22.30 cm (v) 24.30 cm

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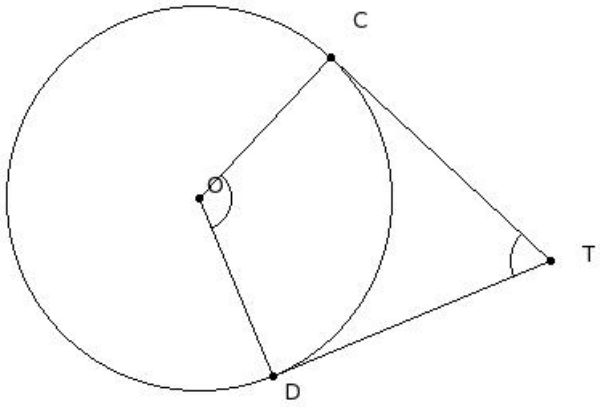
39. In the given figure, CT & DT are tangents to the circle with centre O. Given ∠COD = 115°, find ∠CTD



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

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40. Two concentric circles are of radii 17 cm and 9 cm. Find the length of the chord of the outer circle that touches the inner circle

(i) 29.84 cm (ii) 27.84 cm (iii) 30.84 cm (iv) 28.84 cm (v) 26.84 cm

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Assignment Key

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