

Name : Circle Concepts Chapter : Tangents and Secants to a Circle Grade : SSC Grade X License : Non Commercial Use

1. The centre of the circle is



- (i) F (ii) G (iii) H (iv) J (v) E
- 2. The chords of the circle are



(i) JE, JF, JG, JH, JI
(ii) EF, FG, GH, HI, IE, GI
(iii) EF, FG, GH, HI, IE, JH
(iv) EF, FG, GH, HI, IE
(v) FG, GH, HI, IE

3. The diameters of the circle are



- (i)  $\overline{LN}$  (ii)  $\overline{JK}$ ,  $\overline{KL}$ ,  $\overline{LM}$ ,  $\overline{MN}$ ,  $\overline{NJ}$ ,  $\overline{LN}$  (iii)  $\overline{OJ}$ ,  $\overline{OK}$ ,  $\overline{OL}$ ,  $\overline{OM}$ ,  $\overline{ON}$ ,  $\overline{LN}$  (iv)  $\overline{JK}$ ,  $\overline{KL}$ ,  $\overline{LM}$ ,  $\overline{MN}$ ,  $\overline{NJ}$
- $(v) \quad \overline{OJ}, \overline{OK}, \overline{OL}, \overline{OM}, \overline{ON}$
- 4. The radii of the circle are



- $(i) \quad \overline{IJ}, \overline{JK}, \overline{KL}, \overline{LM}, \overline{MI}, \overline{NI} \quad (ii) \quad \overline{JK}, \overline{KL}, \overline{LM}, \overline{MI} \quad (iii) \quad \overline{IJ}, \overline{JK}, \overline{KL}, \overline{LM}, \overline{MI} \quad (iv) \quad \overline{IJ}, \overline{JK}, \overline{KL}, \overline{LM}, \overline{MI}, \overline{KM}, \overline{KL}, \overline{LM}, \overline{MI}, \overline{KM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{KL}, \overline{LM}, \overline{KL}, \overline{K}, \overline{K}$
- $(v) \quad \overline{NI}, \overline{NJ}, \overline{NK}, \overline{NL}, \overline{NM}$
- 5. The minor sector of the circle is



(i) IDGEI (ii) IDFEI (iii) DFEHD (iv) DGE (v) DFE

6. The major sector of the circle is



- 7. The minor arc of the circle is



(i) HJI (ii) HKILH (iii) HJILH (iv) MHJIM (v) HKI

8. The major arc of the circle is





(i) on the circle (ii) outside the circle (iii) inside the circle

13. 'O' is the centre of a circle of radius 'r' and 'P' is any point in its plane. If  $\overline{OP}$  < r, then P is



(i) outside the circle (ii) on the circle (iii) inside the circle

14. 'O' is the centre of a circle of radius 'r' and 'P' is any point in its plane. If  $\overline{OP} > r$ , then P is



- 22. The perimeter of a circle is called
  - (i) radius (ii) diameter (iii) chord (iv) circumference (v) semi-circle

#### 23. Which of the following statements are true?

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

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

#### 24. Which of the following statements are true?

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

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

#### 25. Which of the following statements are true?

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

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

- 26. If the diameter of a circle is 84 cm, what is its radius?
  - (i) 44 cm (ii) 42 cm (iii) 41 cm (iv) 43 cm (v) 40 cm
- 27. If the radius of a circle is 42 cm, what is its diameter?(i) 84 cm (ii) 82 cm (iii) 86 cm (iv) 85 cm (v) 83 cm
- 28. If the radius of a circle is 63 cm, what is its circumference?(i) 398 cm (ii) 394 cm (iii) 396 cm (iv) 397 cm (v) 395 cm
- 29. In the given triangle S is the circumcentre. If SE = 12.40 cm, find the circumference of the circumcircle



- 30. Two circles with equal radii are (i) congruent (ii) concentric (iii) not similar (iv) only similar but not congruent
  - 31. A line which intersects the circle at two distinct points is called a
    - (i) circumference (ii) secant (iii) diameter (iv) tangent (v) semi-circle
  - 32. A line which touches a circle at only one point is called a(i) segment (ii) semi-circle (iii) tangent (iv) diameter (v) radius
  - 33. 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) diameter (ii) major segment (iii) chord (iv) radius (v) quadrant

34. Which of the following statements are true?

- a) The radius is the shortest chord.
- b) A chord divides a circle into two segments.
- c) Atmost one chord can be drawn on a circle with a certain length.
- d) A chord divides a circle into two sectors.
- e) The diameter is the longest chord.
- (i) {b,e} (ii) {c,e,b} (iii) {d,a,b} (iv) {a,b} (v) {c,e}

### 35. Which of the following statements are true?

- a) The farther the chord is from the centre, the larger the angle it subtends at the centre.
- b) No two chords bisects each other.
- c) Equal length chords subtend equal angles at the centre of the circle.
- d) Equal length chords are equidistant from the centre of the circle.
- e) The longest chord of the circle passes through the centre of the circle.
- (i)  $\{c,d,e\}$  (ii)  $\{a,c\}$  (iii)  $\{b,d\}$  (iv)  $\{a,b,e\}$  (v)  $\{a,c,d\}$

# 36. Which of the following statements are true?

- a) The diameter divides the circle into two unequal parts.
- b) A sector is the area enclosed by two radii and a chord.
- c) A circle divides the plane on which it lies into three parts.
- d) The area enclosed by a chord and its major arc is called major segment.
- e) The area enclosed by a chord and its minor arc is called minor segment.

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

## 37. Which of the following statements are true?

- a) A sector is the area enclosed by two radii and a chord.
- b) The midpoint of any diameter of a circle is its centre.
- c) The diameter divides the circle into two unequal parts.
- d) The longest of all chords of a circle is called diameter.
- e) Two chords bisect each other.
- (i)  $\{e,a,b\}$  (ii)  $\{a,b\}$  (iii)  $\{c,d\}$  (iv)  $\{b,d\}$  (v)  $\{c,d,b\}$

38. Which of the fo	llowing	statements	are true?
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- 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) Exactly two tangents can be drawn parallel to a secant.
- e) Only one circle can be drawn passing through two points.

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

39. 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 radius is a limiting case of a diameter.
- d) A secant has two end points.
- e) A diameter is a limiting case of a chord.
- (i) {b,a} (ii) {c,e,a} (iii) {a,e} (iv) {d,b,a} (v) {c,e}
- 40. Which of the following statements are true?

a) Two tangents to a circle always intersect.

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

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

- 41. The point of intersection of the angular bisectors of a triangle is
  - (i) incentre (ii) circumcentre (iii) centroid (iv) excentre (v) orthocentre
- 42. The angle subtended by the semicircle at the centre is(i) 180° (ii) 185° (iii) 210° (iv) 195° (v) 190°
- 43. The angle subtended by the diameter at any point on the circle is
  (i) 100° (ii) 95° (iii) 105° (iv) 120° (v) 90°
- 44. If the radius of the circumcircle is half the length of a side of the triangle, then the triangle is(i) right angle triangle (ii) acute angled triangle (iii) equilateral triangle (iv) obtuse angled triangle

45. Circles having common centre are called

- (i) intersecting circles (ii) concentric circles (iii) congruent circles (iv) similar circles
- 46. If two circles are concentric, then
  - (i) their diameters are same (ii) their centres are same (iii) their perimeters are same
  - (iv) their radii are same

47. Which of the following figures represent a chord ?





48. Which of the following figures represent a diameter ?



49. Which of the following figures represent a secant ?



50. Which of the following figures represent a tangent ?



a) All chords of a circle are diameters.

- b)  $\pi$  is a rational number.
- c) A circle divides the plane into three mutually disjoint sets of points.
- d) All diameters of a circle are chords.
- e)  $\frac{22}{7}$  is a rational number.
- (i)  $\{a,b,e\}$  (ii)  $\{b,d\}$  (iii)  $\{a,c,d\}$  (iv)  $\{c,d,e\}$  (v)  $\{a,c\}$

52. Points which lie on the circumference of the circle are called

(i) Concurrent points (ii) Cyclic points (iii) Concyclic points (iv) Similar points (v) Coincident points





54. O is the centre of the circle. If  $\angle GIH = 59^{\circ}$  and  $\angle IGJ = 59^{\circ}$ , find x°, y°



(i) 31°, 32° (ii) 61°, 52° (iii) 21°, 32° (iv) 41°, 42° (v) 32°, 31°

55. If a chord DE = 18 cm is drawn in a circle with radius OD = 10 cm, find its distance from the centre of the circle

![](_page_10_Figure_6.jpeg)

(i) 2.36 cm (ii) 3.36 cm (iii) 6.36 cm (iv) 5.36 cm (v) 4.36 cm

56. Two circles touch internally. E is the centre of the bigger circle and lies on the smaller circle. If  $\angle BCD = 62^{\circ}$ , find  $\angle B$ 

![](_page_11_Figure_1.jpeg)

57. <sup>'B'</sup> and 'C' are centres of circles of radii 2 cm and 9 cm such that BC = 17 cm and 'D' is the centre of the circle of radius 'r' cm which touches the above circles externally. If  $\angle BDC = 90^\circ$ , find 'r'

![](_page_11_Figure_3.jpeg)

- (i) 5 cm (ii) 6 cm (iii) 7 cm (iv) 4 cm (v) 8 cm
- 58. With the vertices of a triangle  $\triangle$ GHI as centres, three circles are drawn touching each other externally. If the sides of the triangle are 8 cm , 16 cm and 12 cm , find the radii of the circles
  - (i) 2 cm , 11 cm & 10 cm respectively (ii) 2 cm , 6 cm & 10 cm respectively
  - (iii) 7 cm , 11 cm & 15 cm respectively (iv) 2 cm , 6 cm & 15 cm respectively
  - (v) 7 cm , 6 cm & 10 cm respectively

59. In the given figure, O is the centre of the circle. E is a point on chord CD such that CE = ED. Find  $\angle OEC$ 

![](_page_12_Figure_1.jpeg)

60. In the given figure, find the angles of the quadrilateral.

![](_page_12_Figure_3.jpeg)

(i) G=92°, H=90°, I=88°, J=90°
(ii) G=93°, H=90°, I=87°, J=90°
(iii) G=91°, H=90°, I=89°, J=90°
(iv) G=90°, H=90°, I=90°, J=90°
(v) G=89°, H=90°, I=91°, J=90°

Assignment Key							
1) (iv)	2) (iv)	3) (i)	4) (v)	5) (ii)	6) (v)		
7) (i)	8) (iii)	9) (iii)	10) (iv)	11) (iii)	12) (i)		
13) (iii)	14) (i)	15) (i)	16) (iii)	17) (ii)	18) (v)		
19) (iii)	20) (iii)	21) (ii)	22) (iv)	23) (i)	24) (i)		
25) (ii)	26) (ii)	27) (i)	28) (iii)	29) (v)	30) (i)		
31) (ii)	32) (iii)	33) (v)	34) (i)	35) (i)	36) (iii)		
37) (iv)	38) (iv)	39) (iii)	40) (i)	41)(i)	42) (i)		
43) (v)	44) (i)	45) (ii)	46) (ii)	47) (ii)	48) (i)		
49) (i)	50) (i)	51) (iv)	52) (iii)	53) (i)	54) (v)		
55) (v)	56) (iii)	57) (ii)	58) (ii)	59) (ii)	60) (iii)		

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