MATHEMATICS MCQ BOOKLET

Grade 10 · Chapter 10 · Tangents and Angles of a Circle

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Independent MCQs on tangents, radii, touching circles, alternate segments, angles in segments, cyclic quadrilaterals, and circle angle theorems. Not copied from the book exercise. Total: 108 questions. Each item has four options, the correct letter, and a short explanation of why it is correct.

A. Important / Main Topics

1. A tangent to a circle touches the circle at:

(A) exactly one point
(B) two points
(C) every point on the circumference
(D) no point

Correct Answer: A

Explanation: A tangent to a circle touches the circle at exactly one point.

2. Theorem 10.1 states that a line drawn perpendicular to a radial segment at its outer end point is:

(A) a secant
(B) tangent to the circle
(C) a chord
(D) a diameter

Correct Answer: B

Explanation: Theorem 10.1 states that a line drawn perpendicular to a radial segment at its outer end point is tangent to the circle.

3. Theorem 10.2 states that the tangent and the radius at the point of contact are:

(A) parallel
(B) equal in length
(C) perpendicular
(D) supplementary

Correct Answer: C

Explanation: Theorem 10.2 states that the tangent and the radius at the point of contact are perpendicular.

4. The shortest distance from the centre to a tangent equals:

(A) half the diameter
(B) the circumference
(C) twice the radius
(D) the radius

Correct Answer: D

Explanation: The perpendicular from the centre meets the tangent at the contact point, one radius away.

5. A line perpendicular to a tangent at the point of contact passes through:

(A) the centre of the circle
(B) any chord
(C) a point outside only
(D) the midpoint of a random chord

Correct Answer: A

Explanation: That perpendicular is the radius direction, so it goes through the centre.

6. Tangents drawn at the two ends of a diameter are:

(A) perpendicular to each other
(B) parallel to each other

(C) equal chords
(D) secants

Correct Answer: B

Explanation: Each tangent is perpendicular to the diameter, and both are perpendicular to the same line, hence parallel.

7. From a point outside a circle, the number of tangents that can be drawn is:

(A) 0
(B) 1
(C) 2
(D) infinitely many

Correct Answer: C

Explanation: Two symmetric tangents touch the circle from an external point.

8. From a point on the circle, the number of tangents that can be drawn is:

(A) 0
(B) 2
(C) 3
(D) 1

Correct Answer: D

Explanation: At a point on the circumference there is exactly one tangent line.

9. Theorem 10.3 states that tangents drawn from an external point to a circle are:

(A) equal in length
(B) perpendicular to each other
(C) parallel
(D) twice the radius

Correct Answer: A

Explanation: The two tangent segments from the same external point have equal length.

10. The two tangents from an external point make equal angles with the line joining the centre to that point because:

(A) all tangents are parallel
(B) triangles to the contact points are congruent
(C) radii are unequal
(D) the centre lies outside

Correct Answer: B

Explanation: The two tangents from an external point make equal angles with the line joining the centre to that point because triangles to the contact points are congruent.

11. If OP = 10 cm and the radius is 6 cm, the length of a tangent from P is:

(A) 4 cm
(B) 16 cm
(C) 8 cm
(D) $\sqrt{136}$ cm only with no simplification

Correct Answer: C

Explanation: If OP = 10 cm and the radius is 6 cm, the length of a tangent from P is 8 cm.

12. If radius r = 5 cm and tangent length from P is 12 cm, then OP equals:

(A) 7 cm
(B) 17 cm
(C) 60 cm
(D) 13 cm

Correct Answer: D

Explanation: $OP^2 = r^2 + \text{tangent}^2 = 25 + 144 = 169$, so OP = 13 cm.

13. Two tangents from P touch at B and C. If PB = 9 cm, then PC equals:

(A) 9 cm
(B) 4.5 cm
(C) 18 cm
(D) depends on □BPC only

Correct Answer: A

Explanation: Tangents from one external point are equal, so PC = PB = 9 cm.

14. If two circles touch externally with radii 2 cm and 1 cm, the distance between centres is:

(A) 1 cm
(B) 3 cm
(C) 2 cm
(D) 4 cm

Correct Answer: B

Explanation: If two circles touch externally with radii 2 cm and 1 cm, the distance between centres is 3 cm.

15. If two circles touch externally with radii 1.4 cm and 2.5 cm, the distance between centres is:

(A) 1.1 cm
(B) 2.5 cm
(C) 3.9 cm
(D) 1.4 cm

Correct Answer: C

Explanation: If two circles touch externally with radii 1.4 cm and 2.5 cm, the distance between centres is 3.9 cm.

16. If two congruent circles touch externally, the distance between centres equals:

(A) zero
(B) one radius
(C) twice the circumference
(D) the diameter of either circle

Correct Answer: D

Explanation: Equal radii r give d = r + r = 2r, which is the diameter.

17. If two circles touch internally with radii 2.5 cm and 1.4 cm, the distance between centres is:

(A) 1.1 cm
(B) 3.9 cm
(C) 2.5 cm
(D) 1.4 cm

Correct Answer: A

Explanation: Theorem 10.5: d = 2.5 − 1.4 = 1.1 cm, so the correct choice is 1.1 cm.

18. If two congruent circles touch internally, the distance between centres is:

(A) the diameter
(B) zero
(C) twice the radius
(D) one radius

Correct Answer: B

Explanation: Identical circles nested with internal contact coincide, so centres coincide.

19. A chord of the outer circle tangent to an inner concentric circle is:

(A) twice as long as any other chord
(B) bisected by the inner circle
(C) equidistant from the centre as every such chord
(D) always a diameter

Correct Answer: C

Explanation: Each such chord is at distance r_inner from the centre, so all are equal in length.

20. Theorem 10.6 (alternate segment) states that the angle between tangent and chord at contact equals:

(A) the central angle
(B) 90° always
(C) half the reflex angle
(D) the angle in the alternate segment

Correct Answer: D

Explanation: Theorem 10.6 (alternate segment) states that the angle between tangent and chord at contact equals the angle in the alternate segment.

21. If tangent–chord angle at P is 46°, the inscribed angle in the alternate segment is:

(A) 46°
(B) 23°
(C) 90°
(D) 134°

Correct Answer: A

Explanation: If tangent–chord angle at P is 46°, the inscribed angle in the alternate segment is 46°.

22. If □BAC between tangents AB and AC is 40° and O is the centre, then □BOC is:

(A) 40°
(B) 140°
(C) 80°
(D) 320°

Correct Answer: B

Explanation: In quadrilateral ABOC, 40° + 90° + □BOC + 90° = 360°, so □BOC = 140°.

23. If □BOC = 120° for tangents from A, then □BAC equals:

(A) 30°
(B) 120°
(C) 60°
(D) 240°

Correct Answer: C

Explanation: If □BOC = 120° for tangents from A, then □BAC equals 60°.

24. If □BOC = 120°, then each angle □OBA between radius and tangent is:

(A) 60°
(B) 90°
(C) 120°
(D) 30°

Correct Answer: D

Explanation: If □BOC = 120°, then each angle □OBA between radius and tangent is 30°.

25. The measure of a central angle of a minor arc is double the angle subtended by the corresponding major arc (Theorem 10.7). If inscribed angle on major arc is 35°, central angle on minor arc is:

(A) 70°
(B) 35°
(C) 110°
(D) 145°

Correct Answer: A

Explanation: The measure of a central angle of a minor arc is double the angle subtended by the corresponding major arc (Theorem 10.7). If inscribed angle on major arc is 35°, central angle on minor arc is 70°.

26. If central angle □COD on minor arc is 80°, an inscribed angle on the major arc subtending the same chord is:

(A) 80°

(B) 40°
(C) 160°
(D) 280°

Correct Answer: B

Explanation: Inscribed angle on the major arc is half the minor-arc central angle: 40°.

27. Theorem 10.8 states that angles in the same segment of a circle are:

(A) supplementary
(B) complementary
(C) equal
(D) always 90°

Correct Answer: C

Explanation: All inscribed angles on the same arc (same segment) are equal.

28. Theorem 10.9 states that the angle in a semicircle is:

(A) 45°
(B) 60°
(C) 180°
(D) 90°

Correct Answer: D

Explanation: Thales' theorem: an angle subtended by a diameter is a right angle.

29. If AB is a diameter and P is on the semicircle, then □APB equals:

(A) 90°
(B) 45°
(C) 180°
(D) twice □AOB

Correct Answer: A

Explanation: Angle in a semicircle is always 90°, so the correct choice is 90°.

30. An angle in a segment greater than a semicircle is:

(A) greater than 90°
(B) less than 90°
(C) equal to 90°
(D) 180°

Correct Answer: B

Explanation: Major-segment inscribed angles are acute (less than a right angle).

31. An angle in a segment less than a semicircle is:

(A) less than 90°
(B) equal to 90°
(C) greater than 90°
(D) 0°

Correct Answer: C

Explanation: Minor-segment inscribed angles are obtuse (greater than 90°).

32. Theorem 10.12 states that opposite angles of a cyclic quadrilateral are:

(A) equal
(B) complementary
(C) both 90°
(D) supplementary (sum 180°)

Correct Answer: D

Explanation: Theorem 10.12 states that opposite angles of a cyclic quadrilateral are supplementary (sum 180°).

33. In cyclic quadrilateral ABCD, if □A = 110°, then □C equals:

(A) 70°

(B) 110°
(C) 180°
(D) 250°

Correct Answer: A

Explanation: In cyclic quadrilateral ABCD, if □A = 110°, then □C equals 70°.

34. In cyclic quadrilateral PQRS, if □P = 85° and □Q = 95°, then □R equals:

(A) 85°
(B) 95°
(C) 105°
(D) 175°

Correct Answer: B

Explanation: □R is opposite □P, so □R = 180° − 85° = 95°.

35. If □POQ = 36° for tangents OP and OQ to circle centre S, then □PSQ equals:

(A) 36°
(B) 72°
(C) 144°
(D) 324°

Correct Answer: C

Explanation: If □POQ = 36° for tangents OP and OQ to circle centre S, then □PSQ equals 144°.

36. If □PSQ = 144° in isosceles triangle PQS (PS = QS), then each base angle is:

(A) 36°
(B) 72°
(C) 144°
(D) 18°

Correct Answer: D

Explanation: 2x + 144° = 180° gives x = 18°, so the correct choice is 18°.

37. If □POQ = 100° and □QRS = 120° with centre O, the reflex □QOS on major arc is:

(A) 260°
(B) 100°
(C) 120°
(D) 80°

Correct Answer: A

Explanation: Reflex central angle = 360° − 100° = 260° on the major side if POQ is minor.

38. Tangent AB = 15 cm, CA = 9 cm along the line through centre P to external A. If r is radius, AP equals:

(A) 9 cm
(B) 9 + r cm
(C) 15 cm
(D) 15 + r cm

Correct Answer: B

Explanation: A, C, P are collinear with C on the circle, so AP = AC + CP = 9 + r.

39. Using AB = 15 cm and AP = 9 + r with right triangle ABP, the radius r equals:

(A) 6 cm
(B) 9 cm
(C) 8 cm
(D) 12 cm

Correct Answer: C

Explanation: $(9 + r)^2 = 15^2 + r^2$ gives $18r = 144$, so $r = 8$ cm.

40. If QP = 12 cm, OP = 13 cm and O is centre, radius r equals:

(A) 6 cm
(B) 7 cm
(C) 25 cm
(D) 5 cm

Correct Answer: D

Explanation: $r = \sqrt{(13^2 - 12^2)} = \sqrt{25} = 5$ cm, so the correct choice is 5 cm.

41. If tangent length is 6 cm and radius is 8 cm, then OP equals:

(A) 10 cm
(B) 2 cm
(C) 14 cm
(D) 100 cm

Correct Answer: A

Explanation: $OP = \sqrt{(6^2 + 8^2)} = 10$ cm, so the correct choice is 10 cm.

42. In a kite OQPR formed by two tangents and radii, if □POQ = 45°, then □QPR equals:

(A) 45°
(B) 135°
(C) 90°
(D) 180°

Correct Answer: B

Explanation: In a kite OQPR formed by two tangents and radii, if □POQ = 45°, then □QPR equals 135°.

43. If □BDC = 56° and alternate-segment angle □BCA = 60°, then □BCD in triangle BCD is:

(A) 56°
(B) 60°
(C) 64°
(D) 120°

Correct Answer: C

Explanation: Sum 56° + 60° + x = 180° gives x = 64°, so the correct choice is 64°.

44. If inscribed □BDC = 60° equals tangent-chord angle, then central □BOC on minor arc BC is:

(A) 30°
(B) 60°
(C) 240°
(D) 120°

Correct Answer: D

Explanation: If inscribed □BDC = 60° equals tangent-chord angle, then central □BOC on minor arc BC is 120°.

45. A stone on a 3 ft string breaks and travels 5 ft along the tangent. Distance covered is:

(A) 5 ft
(B) 3 ft
(C) 8 ft
(D) 15 ft

Correct Answer: A

Explanation: After release it moves along the tangent direction for 5 ft.

46. Three equal external-touching circles have centre distances in ratio 2 : 3 : 4. If perimeter of centre triangle is 36 cm, smallest radius is:

(A) 3 cm
(B) 2 cm
(C) 4 cm
(D) 6 cm

Correct Answer: B

Explanation: Three equal external-touching circles have centre distances in ratio 2 : 3 : 4. If perimeter of centre triangle is 36 cm, smallest radius is 2 cm.

47. If radius is 4 cm, distance between tangents at ends of a diameter is:

(A) 2 cm
(B) 4 cm
(C) 8 cm
(D) 16 cm

Correct Answer: C

Explanation: Parallel tangents at diameter ends are 2r = 8 cm apart.

48. If □A = 70° in cyclic quadrilateral, opposite □C is:

(A) 70°
(B) 180°
(C) 290°
(D) 110°

Correct Answer: D

Explanation: If □A = 70° in cyclic quadrilateral, opposite □C is 110°.

49. If tangent PT and chord PA form 75° at P, inscribed angle in alternate segment on major arc is:

(A) 75°
(B) 37.5°
(C) 105°
(D) 150°

Correct Answer: A

Explanation: If tangent PT and chord PA form 75° at P, inscribed angle in alternate segment on major arc is 75°.

50. If OP = 13 cm, radius 5 cm, tangent length is:

(A) 8 cm
(B) 12 cm
(C) 18 cm
(D) 169 cm

Correct Answer: B

Explanation: √(169 − 25) = 12 cm, so the correct choice is 12 cm.

51. If □PTQ = 72° where T is on major arc and □PSQ = 144° at centre, then relationship is:

(A) □PTQ = □PSQ
(B) □PTQ = 2□PSQ
(C) □PTQ = ½□PSQ
(D) □PTQ + □PSQ = 90°

Correct Answer: C

Explanation: If □PTQ = 72° where T is on major arc and □PSQ = 144° at centre, then relationship is □PTQ = ½□PSQ.

52. Minor segment of a circle is the region between a chord and:

(A) the major arc
(B) the centre always
(C) a tangent
(D) the minor arc

Correct Answer: D

Explanation: Minor segment of a circle is the region between a chord and the minor arc.

53. Major segment always contains:

(A) the centre when larger than a semicircle
(B) no part of the circle
(C) only tangents

(D) the in-centre only

Correct Answer: A

Explanation: A major segment is bigger than a semicircle and includes the centre.

54. If □POQ = 40° for tangents, □OPQ equals:

(A) 20°
(B) 70°
(C) 40°
(D) 50°

Correct Answer: B

Explanation: □OPQ = 90° − □SPQ where □SPQ = 20° from isosceles, so 70°.

55. Two circles radii 3 cm and 5 cm touch externally. Distance between centres:

(A) 2 cm
(B) 15 cm
(C) 8 cm
(D) 16 cm

Correct Answer: C

Explanation: 3 + 5 = 8 cm, so the correct choice is 8 cm.

56. Two circles radii 7 cm and 3 cm touch internally. Distance between centres:

(A) 10 cm
(B) 21 cm
(C) 7 cm
(D) 4 cm

Correct Answer: D

Explanation: 7 − 3 = 4 cm, so the correct choice is 4 cm.

57. Cyclic quadrilateral: if three angles are 80°, 100°, 70°, the fourth is:

(A) 110°
(B) 100°
(C) 90°
(D) 80°

Correct Answer: A

Explanation: Opposite to 70° is 110°; check pairs: 80+100=180, 70+110=180.

58. If central angle on minor arc is 100°, inscribed angle on same minor arc from point on major arc is:

(A) 100°
(B) 50°
(C) 200°
(D) 260°

Correct Answer: B

Explanation: If central angle on minor arc is 100°, inscribed angle on same minor arc from point on major arc is 50°.

59. If r = 6 cm and distance from P to centre is 10 cm, tangent length squared equals:

(A) 16
(B) 36
(C) 64
(D) 100

Correct Answer: C

Explanation: $t^2 = 10^2 − 6^2 = 64$, so the correct choice is 64.

60. If □SAB = 63° and □TAC = 57° on tangent SAT at A, then □BAC equals:

(A) 57°
(B) 63°
(C) 120°

(D) 60°

Correct Answer: D

Explanation: If □SAB = 63° and □TAC = 57° on tangent SAT at A, then □BAC equals 60°.

61. Inscribed angles □ACB and □ADB on same segment AB are:

(A) equal
(B) supplementary
(C) complementary
(D) central

Correct Answer: A

Explanation: Angles in the same segment are equal (Theorem 10.8).

62. If diameter AB and point C on circle, □ACB is:

(A) acute always
(B) right angle
(C) obtuse always
(D) central

Correct Answer: B

Explanation: Angle in semicircle is 90°, so the correct choice is right angle.

63. For external point, line OP bisects the angle between the two tangents because:

(A) tangents are parallel
(B) OP is a chord
(C) triangles OPA and OPB are congruent
(D) OP equals radius

Correct Answer: C

Explanation: For external point, line OP bisects the angle between the two tangents because triangles OPA and OPB are congruent.

64. Alternate segment theorem applies to angle between:

(A) two chords only
(B) two tangents from P
(C) two radii
(D) tangent and chord at contact

Correct Answer: D

Explanation: The theorem compares tangent–chord angle with inscribed angle in alternate segment.

65. Opposite angles of cyclic quadrilateral ABCD satisfy:

(A) □A + □C = 180°
(B) □A = □C
(C) □A + □B = 180°
(D) □A = □B

Correct Answer: A

Explanation: Opposite angles in a cyclic quadrilateral are supplementary.

66. Number of tangents from interior point of circle:

(A) 1
(B) 0
(C) 2
(D) infinite

Correct Answer: B

Explanation: An interior point cannot reach the circle along a line that touches once only.

67. Tangent to circle is perpendicular to radius at:

(A) any point on circle
(B) centre

(C) point of contact only
(D) midpoint of chord only

Correct Answer: C

Explanation: Tangent to circle is perpendicular to radius at point of contact only.

68. If AB and AC are tangents and □BOC = 140°, then □ABC + □ACB in triangle ABC equals:

(A) 40°
(B) 100°
(C) 140°
(D) 80°

Correct Answer: D

Explanation: If AB and AC are tangents and □BOC = 140°, then □ABC + □ACB in triangle ABC equals 80°.

69. Central angle 120° on minor arc corresponds to inscribed angle on major arc of:

(A) 60°
(B) 240°
(C) 120°
(D) 30°

Correct Answer: A

Explanation: Central angle 120° on minor arc corresponds to inscribed angle on major arc of 60°.

70. If tangent length equals radius, angle between OP and radius at contact is:

(A) 30°
(B) 45°
(C) 60°
(D) 90°

Correct Answer: B

Explanation: Right triangle with legs equal gives 45° at O.

71. In cyclic quad, if □B = 115°, then □D equals:

(A) 115°
(B) 180°
(C) 65°
(D) 295°

Correct Answer: C

Explanation: 180° − 115° = 65°, so the correct choice is 65°.

72. Two tangents from P make equal angles with OP because OP is:

(A) a diameter
(B) parallel to BC
(C) equal to AB
(D) angle bisector of □APB

Correct Answer: D

Explanation: Two tangents from P make equal angles with OP because OP is angle bisector of □APB.

73. If r = 7 cm and tangent from P is 24 cm, OP equals:

(A) 25 cm
(B) 17 cm
(C) 31 cm
(D) 576 cm

Correct Answer: A

Explanation: √(49 + 576) = 25 cm, so the correct choice is 25 cm.

74. Angle in segment less than semicircle is obtuse; an example measure is:

(A) 45°
(B) 120°

(C) 90°
(D) 180°

Correct Answer: B

Explanation: 120° is greater than 90°, fitting a minor-segment angle.

75. Angle in segment greater than semicircle is acute; an example measure is:

(A) 120°
(B) 90°
(C) 60°
(D) 180°

Correct Answer: C

Explanation: 60° is less than 90°, fitting a major-segment angle.

76. Tangent from point on circle has length:

(A) equal to radius
(B) equal to diameter
(C) twice radius
(D) zero (only one point of contact, no segment)

Correct Answer: D

Explanation: At a point on the circle the tangent has no external segment length; contact is the point itself.

77. The angle subtended by an arc at the centre is called a:

(A) central angle
(B) reflex angle only
(C) inscribed angle
(D) tangent angle

Correct Answer: A

Explanation: An arc's angle at the centre is the central angle.

78. If two tangents at the ends of a diameter are drawn, they are:

(A) perpendicular to each other
(B) parallel
(C) intersecting at the centre
(D) equal chords

Correct Answer: B

Explanation: Both are perpendicular to the same diameter, hence parallel.

79. If circles touch externally with radii 4 cm and 6 cm, distance AB between centres is:

(A) 2 cm
(B) 24 cm
(C) 10 cm
(D) 12 cm

Correct Answer: C

Explanation: External contact: d = 4 + 6 = 10 cm, so the correct choice is 10 cm.

80. Angle between tangent and diameter at the point of contact is:

(A) 0°
(B) 45°
(C) 180°
(D) 90°

Correct Answer: D

Explanation: Tangent is perpendicular to the radius, and a diameter is along a radius line.

B. Less Important / Secondary Topics

81. Tangents in architecture help design:

(A) curves such as arches and domes
(B) only straight walls
(C) right prisms only
(D) parallel lines only

Correct Answer: A

Explanation: Tangents in architecture help design curves such as arches and domes.

82. A car wheel on a road illustrates the road as a tangent to the circular wheel at:

(A) every point of the rim at once
(B) the contact point where the wheel touches
(C) the axle only
(D) no point

Correct Answer: B

Explanation: Rolling contact is locally tangent at the bottom touch point.

83. Theorem 10.1 is the converse idea to Theorem 10.2 in that one starts from:

(A) two circles touching
(B) cyclic quadrilateral
(C) perpendicular at end of radius vs radius to given tangent
(D) histogram class marks

Correct Answer: C

Explanation: 10.1 builds a tangent from perpendicularity; 10.2 states radius □ tangent at contact.

84. The word tangent comes from Latin tangere meaning:

(A) to cut twice
(B) to bisect
(C) to rotate
(D) to touch

Correct Answer: D

Explanation: Tangent means touching at one point, so the correct choice is to touch.

85. A secant line intersects a circle at:

(A) two points
(B) one point only
(C) no points always
(D) the centre only

Correct Answer: A

Explanation: A secant line intersects a circle at two points.

86. If OP bisects □APB for tangents PA and PB, then □APO equals:

(A) □APB
(B) ½□APB
(C) 90° − □APB
(D) 2□APB

Correct Answer: B

Explanation: If OP bisects □APB for tangents PA and PB, then □APO equals ½□APB.

87. Concentric circles have:

(A) different centres
(B) equal radii always
(C) the same centre
(D) no chords

Correct Answer: C

Explanation: Concentric means sharing one centre, so the correct choice is the same centre.

88. Equal chords of a circle subtend equal angles at the:

(A) tangent only
(B) external point only
(C) in-centre only
(D) centre

Correct Answer: D

Explanation: Equal chords give equal central angles, so the correct choice is centre.

89. Thales' theorem is another name for:

(A) angle in semicircle is 90°
(B) alternate segment theorem
(C) external touch distance rule
(D) tangent length equality

Correct Answer: A

Explanation: Theorem 10.9 is the semicircle right-angle result, often called Thales' theorem.

90. A cyclic quadrilateral has all vertices:

(A) on a straight line
(B) on one circle
(C) at the centre
(D) on tangents only

Correct Answer: B

Explanation: Cyclic means inscribed in a circle, so the correct choice is on one circle.

91. If □A + □C = 180° in quadrilateral ABCD on a circle, ABCD is:

(A) always a square
(B) impossible
(C) cyclic
(D) a tangent quadrilateral

Correct Answer: C

Explanation: If □A + □C = 180° in quadrilateral ABCD on a circle, ABCD is cyclic.

92. Major arc is the:

(A) shorter arc between two points
(B) diameter only
(C) tangent segment
(D) longer arc between two points

Correct Answer: D

Explanation: Major arc is the larger of the two arcs joining two points.

93. If inscribed angle is 55° on minor arc, central angle on that minor arc is:

(A) 110°
(B) 27.5°
(C) 55°
(D) 220°

Correct Answer: A

Explanation: If inscribed angle is 55° on minor arc, central angle on that minor arc is 110°.

94. Tangent–radius right triangle has hypotenuse along:

(A) the tangent from external point to centre
(B) line from external point to centre
(C) the chord only
(D) diameter always

Correct Answer: B

Explanation: OP is hypotenuse; radius and tangent segment are perpendicular legs.

95. Two parallel tangents to a circle lie on:

(A) the same side of centre
(B) intersecting lines
(C) opposite sides equidistant from centre
(D) a secant

Correct Answer: C

Explanation: Parallel tangents are equally far from the centre on opposite sides.

96. If diameter is 10 cm, radius is:

(A) 10 cm
(B) 20 cm
(C) 25 cm
(D) 5 cm

Correct Answer: D

Explanation: Radius is half the diameter, so the correct choice is 5 cm.

97. Inscribed angle standing on diameter subtends arc of:

(A) 180°
(B) 90°
(C) 360°
(D) 0°

Correct Answer: A

Explanation: Inscribed angle standing on diameter subtends arc of 180°.

98. If □BAC = 60° between tangents and O centre, □BOC equals:

(A) 60°
(B) 150°
(C) 120°
(D) 240°

Correct Answer: B

Explanation: If □BAC = 60° between tangents and O centre, □BOC equals 150°.

99. If □BAC = 60° between tangents, □BOC equals:

(A) 60°
(B) 150°
(C) 120°
(D) 300°

Correct Answer: C

Explanation: If □BAC = 60° between tangents, □BOC equals 120°.

100. External touch: if r = 2.5 cm each for two equal circles, centre distance is:

(A) 2.5 cm
(B) 7.5 cm
(C) 0 cm
(D) 5 cm

Correct Answer: D

Explanation: d = 2r = 5 cm, the diameter, so the correct choice is 5 cm.

101. Internal touch: smaller radius 1 cm inside larger 3 cm gives centre distance:

(A) 2 cm
(B) 4 cm
(C) 1 cm
(D) 3 cm

Correct Answer: A

Explanation: 3 − 1 = 2 cm, so the correct choice is 2 cm.

102. Alternate segment: tangent at A and chord AB give angle equal to □ACB where C is:

(A) at centre
(B) on same arc as B on alternate side of AB
(C) on tangent
(D) outside circle

Correct Answer: B

Explanation: C lies on the alternate (opposite) arc from the angle between tangent and chord.

103. If OP = 17 cm, r = 8 cm, tangent length is:

(A) 9 cm
(B) 25 cm
(C) 15 cm
(D) 289 cm

Correct Answer: C

Explanation: √(289 − 64) = √225 = 15 cm, so the correct choice is 15 cm.

104. Cyclic quadrilateral with □A = 90° has opposite □C equal to:

(A) 180°
(B) 270°
(C) 0°
(D) 90°

Correct Answer: D

Explanation: 180° − 90° = 90°, so the correct choice is 90°.

105. Number of points common to tangent and circle:

(A) 1
(B) 0
(C) 2
(D) infinite

Correct Answer: A

Explanation: Number of points common to tangent and circle 1.

106. If □POQ = 36° for tangents, each □OPQ in right triangle is:

(A) 18°
(B) 54°
(C) 36°
(D) 72°

Correct Answer: B

Explanation: Half of 36° is 18° at O; □OPQ = 90° − 18° = 72°.

107. Segment of circle bounded by chord and minor arc is:

(A) major segment
(B) sector only
(C) minor segment
(D) tangent strip

Correct Answer: C

Explanation: Minor segment uses the smaller arc, so the correct choice is minor segment.

108. If central angle is double inscribed on same arc, inscribed on minor arc 40° gives central:

(A) 20°
(B) 40°
(C) 160°
(D) 80°

Correct Answer: D

Explanation: Central = 2 × 40° = 80°, so the correct choice is 80°.