MATHEMATICS MCQ BOOKLET

Grade 10 · Chapter 9 · Chord and Arcs of a Circle

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Independent MCQs on circle theorems, chords, arcs, central angles, perpendicular from centre, equidistant chords, arc–chord relationships, and applications including arc length and sector area. 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. Through three non-collinear points there is:

(A) one and only one circle
(B) no circle
(C) infinitely many different circles
(D) only a line

Correct Answer: A

Explanation: Through three non-collinear points there is one and only one circle.

2. A line from the centre to bisect a chord is:

(A) parallel to the chord
(B) perpendicular to the chord
(C) equal to the chord
(D) a tangent

Correct Answer: B

Explanation: Theorem 9.2: bisecting radius/diameter is perpendicular to the chord.

3. A perpendicular from the centre to a chord:

(A) doubles the chord
(B) is parallel to the chord
(C) bisects the chord
(D) equals the radius always

Correct Answer: C

Explanation: Theorem 9.3: the foot of the perpendicular is the midpoint.

4. Two congruent chords of a circle are:

(A) always diameters
(B) always parallel
(C) always perpendicular
(D) equidistant from the centre

Correct Answer: D

Explanation: Theorem 9.4: equal chords lie the same distance from O.

5. Two chords equidistant from the centre are:

(A) congruent
(B) always perpendicular
(C) always diameters
(D) unequal always

Correct Answer: A

Explanation: Converse: same distance from O implies equal length.

6. If two arcs of a circle are congruent, their chords are:

(A) perpendicular
(B) equal
(C) parallel always

(D) half the radius

Correct Answer: B

Explanation: Congruent arcs cut equal chords, so the correct choice is equal.

7. If two chords of a circle are equal, their minor arcs are:

(A) always semicircles
(B) always 180°
(C) congruent
(D) unequal

Correct Answer: C

Explanation: Equal chords subtend congruent arcs, so the correct choice is congruent.

8. Equal chords subtend at the centre:

(A) right angles always
(B) 0°
(C) supplementary angles only
(D) equal central angles

Correct Answer: D

Explanation: Equal chords subtend at the centre equal central angles.

9. If central angles of two chords are equal, the chords are:

(A) equal
(B) parallel always
(C) tangents
(D) diameters always

Correct Answer: A

Explanation: Converse of theorem 9.8, so the correct choice is equal.

10. An arc is:

(A) a full circle always
(B) a part of a circle
(C) a straight line only
(D) a chord only

Correct Answer: B

Explanation: Arc AB is a curved portion of the circle.

11. Arc AB is denoted by:

(A) AB with a line only
(B) angle AOB only
(C) arc notation over AB
(D) vector AB

Correct Answer: C

Explanation: An over-arc symbol marks arc AB, so the correct choice is arc notation over AB.

12. A central angle has its vertex at:

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

Correct Answer: D

Explanation: Central angles use the centre as vertex.

13. The central angle of a quadrant arc is:

(A) 90°
(B) 45°
(C) 180°

(D) 360°

Correct Answer: A

Explanation: A quadrant is one-fourth of a circle: 360°/4 = 90°.

14. If a circle is divided into 10 equal arcs, each central angle is:

(A) 10°
(B) 36°
(C) 60°
(D) 90°

Correct Answer: B

Explanation: 360°/10 = 36° per arc, so the correct choice is 36°.

15. How many central angles can be drawn for one fixed arc?

(A) two
(B) ten
(C) one
(D) infinitely many

Correct Answer: C

Explanation: One — this correctly answers the question.

16. Two congruent chords in congruent circles have central angles that are:

(A) always 90°
(B) supplementary always
(C) unrelated
(D) the same

Correct Answer: D

Explanation: Two congruent chords in congruent circles have central angles that are the same.

17. A central angle of an arc containing a semicircle is:

(A) equal to 180°
(B) less than 90°
(C) greater than 180°
(D) 360°

Correct Answer: A

Explanation: A central angle of an arc containing a semicircle is equal to 180°.

18. Diameter perpendicular to a chord:

(A) trisects the chord
(B) bisects the chord
(C) is parallel to it
(D) has no relation

Correct Answer: B

Explanation: Diameter perpendicular to a chord bisects the chord.

19. The perpendicular bisector of a chord passes through:

(A) only a random point
(B) outside the circle always
(C) the centre
(D) the tangent point only

Correct Answer: C

Explanation: The perpendicular bisector of a chord passes through the centre.

20. In a circle of radius 5 cm, a chord is 3 cm from the centre. Chord length is:

(A) 6 cm
(B) 10 cm
(C) 4 cm

(D) 8 cm

Correct Answer: D

Explanation: Half-chord $\sqrt{(25 - 9)} = 4$ cm, so full chord = 8 cm.

21. Two parallel chords on opposite sides of centre at distances 3 cm and 4 cm from O are:

(A) 7 cm apart
(B) 1 cm apart
(C) 5 cm apart
(D) 12 cm apart

Correct Answer: A

Explanation: Two parallel chords on opposite sides of centre at distances 3 cm and 4 cm from O are 7 cm apart.

22. In the same setup, distance OE from centre to chord satisfies:

(A) $16^2 + OE^2 = 10^2$
(B) $8^2 + OE^2 = 10^2$
(C) OE = 10
(D) OE = 16

Correct Answer: B

Explanation: In the same setup, distance OE from centre to chord satisfies $8^2 + OE^2 = 10^2$.

23. Distance from centre to a chord of length 8 in a circle of radius 5 cm is:

(A) 4 cm
(B) 5 cm
(C) 3 cm
(D) 6 cm

Correct Answer: C

Explanation: Half-chord 4: $d = \sqrt{(25 - 16)} = 3$ cm, so the correct choice is 3 cm.

24. Radius 13 cm, perpendicular distance to chord 5 cm. Chord length is:

(A) 26 cm
(B) 10 cm
(C) 12 cm
(D) 24 cm

Correct Answer: D

Explanation: Radius 13 cm, perpendicular distance to chord 5 cm. Chord length is 24 cm.

25. Chord AB = 4 cm, OC = 3 cm where O is centre and C is foot on AB. If DE □ AB through mid of OC with DE longer, DE length if radius 5:

(A) 6.6 cm typical setup
(B) need more data
(C) 4 cm
(D) 8 cm

Correct Answer: A

Explanation: Standard textbook setup with r=5, d=1.5 gives DE ≈ 6.6 cm — use clean version.

26. If radius r and distance d from centre to chord, half-chord length is:

(A) r − d
(B) $\sqrt{(r^2 - d^2)}$
(C) r + d
(D) 2r − d

Correct Answer: B

Explanation: If radius r and distance d from centre to chord, half-chord length is $\sqrt{(r^2 - d^2)}$.

27. Arc length l with central angle θ (degrees) and radius r equals:

(A) $\theta \times r^2$
(B) $2\pi r/\theta$

(C) $(\theta/360) \times 2\pi r$
(D) $\pi r^2\theta$

Correct Answer: C

Explanation: Arc is the fraction $\theta/360$ of circumference $2\pi r$.

28. Area of a sector with angle θ (degrees) is:

(A) $2\pi r$
(B) θr
(C) $(\theta/360) \times 2\pi r$ only
(D) $(\theta/360) \times \pi r^2$

Correct Answer: D

Explanation: Sector area is fraction $\theta/360$ of full circle area πr^2.

29. Perimeter of a semicircle of radius r is:

(A) $2r + \pi r$
(B) πr
(C) $2\pi r$
(D) $r + \pi$

Correct Answer: A

Explanation: Perimeter of a semicircle of radius r is $2r + \pi r$.

30. Perimeter of a circular segment equals:

(A) $2\pi r$
(B) arc length + chord length
(C) πr only
(D) radius + diameter

Correct Answer: B

Explanation: Segment boundary is the arc plus the chord.

31. For θ = 60° and r = 14 cm, arc length is approximately:

(A) 7 cm
(B) 28 cm
(C) 14.67 cm
(D) 44 cm

Correct Answer: C

Explanation: $(60/360) \times 2 \times (22/7) \times 14 \approx 14.67$ cm, so the correct choice is 14.67 cm.

32. For θ = 60° and r = 14 cm, sector area is approximately:

(A) 14 cm^2
(B) 616 cm^2
(C) 196 cm^2
(D) 102.67 cm^2

Correct Answer: D

Explanation: $(60/360) \times (22/7) \times 196 \approx 102.67$ cm^2, so the correct choice is 102.67 cm^2.

33. A circle is different from a circular region because the region includes:

(A) the interior as well as the boundary
(B) only the boundary
(C) only the centre
(D) only chords

Correct Answer: A

Explanation: A circle is different from a circular region because the region includes the interior as well as the boundary.

34. Collinear three points determine:

(A) a unique circle always

(B) no circle (infinitely many through a line)
(C) two circles
(D) a triangle only

Correct Answer: B

Explanation: Collinear three points determine no circle (infinitely many through a line).

35. If AB is a chord and CD is a diameter perpendicular to AB at E, then AE equals:

(A) AB
(B) OE
(C) BE
(D) CD

Correct Answer: C

Explanation: If AB is a chord and CD is a diameter perpendicular to AB at E, then AE equals BE.

36. If AB is chord and CD □ AB through centre, then AC equals:

(A) AB
(B) CD
(C) AD only when A=D
(D) BC

Correct Answer: D

Explanation: Symmetry gives AC = BC when CD is perp bisector through O.

37. Congruent circles have:

(A) equal radii
(B) different centres always at same point
(C) no chords
(D) only semicircles

Correct Answer: A

Explanation: Congruent circles have equal radii.

38. Equal chords in the same circle subtend arcs that are:

(A) always major
(B) congruent
(C) always 360°
(D) perpendicular

Correct Answer: B

Explanation: Matching chords cut matching arcs, so the correct choice is congruent.

39. If one central angle is 60° and chords are in ratio 1:3, the second arc for equal chords would be:

(A) 180°
(B) 120°
(C) 60°
(D) 30°

Correct Answer: C

Explanation: If one central angle is 60° and chords are in ratio 1:3, the second arc for equal chords would be 60°.

40. Theorem: equal chords □ equal central angles is numbered in the unit as:

(A) 9.2
(B) 9.1
(C) 9.10
(D) 9.8

Correct Answer: D

Explanation: Theorem 9.8 links equal chords to equal central angles.

41. If diameter 20 cm and chord 16 cm are perpendicular, radius equals:

(A) 10 cm

(B) 8 cm
(C) 16 cm
(D) 20 cm

Correct Answer: A

Explanation: Radius is half the diameter: 10 cm, so the correct choice is 10 cm.

42. Distance from centre to a 16 cm chord with radius 10 cm is:

(A) 8 cm
(B) 6 cm
(C) 10 cm
(D) 4 cm

Correct Answer: B

Explanation: Half-chord 8: OE = $\sqrt{(100 - 64)} = 6$ cm, so the correct choice is 6 cm.

43. Two parallel chords on opposite sides of centre, each distance 3 cm from O, radius 5. Chord lengths each:

(A) 6 cm
(B) 10 cm
(C) 8 cm
(D) 4 cm

Correct Answer: C

Explanation: Each half = $\sqrt{(25-9)}=4$, chord = 8 cm, so the correct choice is 8 cm.

44. Two parallel chords lengths 6 and 8, radius 5, opposite sides. Distance between chords:

(A) 1 cm
(B) 5 cm
(C) 13 cm
(D) 3 + 4 = 7 cm if distances 3 and 4

Correct Answer: D

Explanation: Distances 3 and 4 from O on opposite sides sum to 7 cm.

45. Chord length 24 cm, distance from centre a, radius 15. Then a equals:

(A) 9 cm
(B) 12 cm
(C) 6 cm
(D) 3 cm

Correct Answer: A

Explanation: $12^2 + a^2 = 15^2 \rightarrow a^2 = 81 \rightarrow a = 9$, so the correct choice is 9 cm.

46. Two parallel chords 24 cm and 12 cm on opposite sides, r = 13. Distance between chords:

(A) 5 cm only always
(B) sum of their center distances
(C) 13 cm
(D) 0 cm

Correct Answer: B

Explanation: Two parallel chords 24 cm and 12 cm on opposite sides, r = 13. Distance between chords sum of their center distances.

47. If bigger circle radius 10 and chord AB = 16, smaller circle through midpoint of AB tangent inside:

(A) inner radius 10
(B) inner radius 8
(C) inner radius 6, difference 4
(D) equal radii

Correct Answer: C

Explanation: Midpoint distance 6 from O; inner radius 6; difference 4.

48. Parallel chords AB = 2 and CD = 6, 4 cm apart on opposite sides of O. Radius equals:

(A) 5 cm
(B) 4 cm
(C) 10 cm
(D) √13 cm

Correct Answer: D

Explanation: Parallel chords AB = 2 and CD = 6, 4 cm apart on opposite sides of O. Radius equals √13 cm.

49. Arc congruent to arc AB means:

(A) same length on same or congruent circle
(B) always 180°
(C) always a diameter
(D) different radii always

Correct Answer: A

Explanation: Arc congruent to arc AB means same length on same or congruent circle.

50. Minor arc corresponds to central angle:

(A) greater than 180°
(B) less than 180°
(C) exactly 360°
(D) 0° only

Correct Answer: B

Explanation: Minor arc is the shorter of the two arcs between two points.

51. Major arc corresponds to central angle:

(A) less than 90°
(B) 0°
(C) greater than 180°
(D) exactly 90° always

Correct Answer: C

Explanation: Major arc is the longer way around the circle.

52. Semicircle arc has central angle:

(A) 90°
(B) 360°
(C) 270°
(D) 180°

Correct Answer: D

Explanation: Semicircle arc has central angle 180°.

53. If chord equals radius, triangle from two radii and chord is:

(A) equilateral
(B) isosceles only not always equilateral
(C) right always
(D) impossible

Correct Answer: A

Explanation: If chord equals radius, triangle from two radii and chord is equilateral.

54. Decorative circular designs use:

(A) only linear equations
(B) chord and arc properties
(C) only vectors
(D) only logarithms

Correct Answer: B

Explanation: Decorative circular designs use chord and arc properties.

55. Rainbow arc modelling involves:

(A) only straight chords
(B) only squares
(C) circular arcs
(D) only hyperbolas

Correct Answer: C

Explanation: Rainbows appear as circular arc segments in ideal geometry.

56. Bridge arches often use:

(A) only triangle area
(B) only prime numbers
(C) only matrix algebra
(D) circle and arc geometry

Correct Answer: D

Explanation: Arches are designed with circular or similar curves.

57. Roller coaster loops use:

(A) curves including circular arcs
(B) only straight lines
(C) only random angles
(D) only 360° at centre

Correct Answer: A

Explanation: Roller coaster loops use curves including circular arcs.

58. A diameter is a chord that:

(A) never touches centre
(B) passes through the centre
(C) is always 1 cm
(D) is parallel to other chords only

Correct Answer: B

Explanation: Diameter is the longest chord through O.

59. Radius drawn to midpoint of chord is:

(A) parallel to chord
(B) equal to chord always
(C) perpendicular to the chord when bisecting
(D) a tangent

Correct Answer: C

Explanation: Centre-to-midpoint line is perpendicular when it bisects.

60. If two chords are equal, their distances from O are:

(A) doubled
(B) halved always
(C) unrelated
(D) equal

Correct Answer: D

Explanation: If two chords are equal, their distances from O are equal.

61. Congruent arcs in congruent circles imply chords are:

(A) equal
(B) perpendicular
(C) parallel to radius
(D) tangents

Correct Answer: A

Explanation: Congruent arcs in congruent circles imply chords are equal.

62. Equal chords in congruent circles give:

(A) always 90°
(B) equal central angles
(C) no central angle
(D) supplementary angles at circumference only

Correct Answer: B

Explanation: Same relationship as in one circle, so the correct choice is equal central angles.

63. If central angle is 120°, the arc is:

(A) major always
(B) semicircle
(C) minor if less than 180°
(D) quadrant

Correct Answer: C

Explanation: 120° < 180° so it is a minor arc, so the correct choice is minor if less than 180°.

64. Quadrant of a circle means arc of:

(A) 180°
(B) 45°
(C) 360°
(D) 90°

Correct Answer: D

Explanation: One quarter of 360° is 90°, so the correct choice is 90°.

65. Number of circles through two distinct points (without other constraints) is:

(A) infinitely many
(B) none
(C) exactly one
(D) two only

Correct Answer: A

Explanation: Any circle through two points can pivot about the segment.

66. Three vertices of a rectangle always lie on:

(A) no circle ever
(B) one circle (rectangle is cyclic)
(C) two circles only
(D) a line only

Correct Answer: B

Explanation: Every rectangle is cyclic; a circle passes through all four vertices.

67. Inscribed angle on a diameter subtending the diameter endpoints is:

(A) 180°
(B) 45°
(C) 90° (Thales)
(D) 60° always

Correct Answer: C

Explanation: Angle in semicircle is a right angle (related classic fact).

68. If PU = 16 and RS = 10 in concentric diameter-chord setup with r, then 16 − OU = r means OU is:

(A) r − 16? — textbook hint: segment relation
(B) chord half
(C) arc length
(D) distance along diameter

Correct Answer: D

Explanation: If PU = 16 and RS = 10 in concentric diameter-chord setup with r, then 16 − OU = r means OU is distance along diameter.

69. Chord DE parallel to AB with AB = 4, OC = 3, DE through midpoint of OC:

(A) uses similar triangles / distance formula
(B) equals AB always
(C) equals diameter
(D) is tangent

Correct Answer: A

Explanation: Chord DE parallel to AB with AB = 4, OC = 3, DE through midpoint of OC uses similar triangles / distance formula.

70. Equal arcs subtend equal chords in:

(A) only squares
(B) the same or congruent circles
(C) only triangles
(D) only lines

Correct Answer: B

Explanation: Equal arcs subtend equal chords in the same or congruent circles.

71. If angle at centre is double an inscribed angle on same arc (standard related): inscribed half of 52° is:

(A) 52°
(B) 104°
(C) 26°
(D) 13°

Correct Answer: C

Explanation: Inscribed angle is half the central angle on the same arc.

72. Circle through three vertices of a triangle is called:

(A) incircle always
(B) excircle only
(C) unit circle only
(D) circumcircle

Correct Answer: D

Explanation: Circle through three vertices of a triangle is called circumcircle.

73. To construct unique circle through three points, points must be:

(A) non-collinear
(B) collinear
(C) on a line through O only
(D) coincident

Correct Answer: A

Explanation: To construct unique circle through three points, points must be non-collinear.

74. Length of chord when r = 5 and d = 0 (diameter case):

(A) 5 cm
(B) 10 cm
(C) 0 cm
(D) 2.5 cm

Correct Answer: B

Explanation: Through centre: chord is a diameter 2r = 10 cm.

75. If chords are congruent, corresponding minor arcs are:

(A) always 360°
(B) always unequal

(C) congruent
(D) perpendicular

Correct Answer: C

Explanation: If chords are congruent, corresponding minor arcs are congruent.

76. Central angle and arc measure in degrees are:

(A) always supplementary
(B) unrelated
(C) always 90°
(D) equal numerically for the same arc

Correct Answer: D

Explanation: Central angle and arc measure in degrees are equal numerically for the same arc.

77. If AB = 16 cm is chord and perpendicular radius to midpoint gives AE = 8 cm with OA = 10 cm, OE =

(A) 6 cm
(B) 8 cm
(C) 10 cm
(D) 2 cm

Correct Answer: A

Explanation: $8^2 + OE^2 = 10^2 \rightarrow OE = 6$ cm, so the correct choice is 6 cm.

78. Two chords equidistant from centre in same circle are:

(A) perpendicular
(B) congruent
(C) diameters always
(D) tangents

Correct Answer: B

Explanation: Converse of theorem 9.4, so the correct choice is congruent.

79. Arc notation distinguishes arc from chord because arc is:

(A) straight segment
(B) a radius
(C) curved part of circle
(D) an angle at centre only

Correct Answer: C

Explanation: Arc follows the circle; chord is straight.

80. Dividing circle into n equal arcs gives central angle:

(A) 180°/n
(B) 90°/n
(C) n degrees always
(D) 360°/n

Correct Answer: D

Explanation: Full 360° split evenly among n arcs, so the correct choice is 360°/n.

B. Less Important / Secondary Topics

81. Circle theorems help find missing angles without:

(A) measuring with a protractor only
(B) any reasoning
(C) knowing chord properties
(D) using numbers

Correct Answer: A

Explanation: Theorems give exact angle relations from chords and arcs.

82. A chord joins:

(A) the centre to outside only
(B) two points on the circle
(C) two parallel lines only
(D) two tangents only

Correct Answer: B

Explanation: A chord lies inside the circle with both endpoints on it.

83. The longest chord of a circle is a:

(A) radius
(B) tangent
(C) diameter
(D) secant outside

Correct Answer: C

Explanation: The longest chord of a circle is a diameter.

84. If a diameter bisects a chord, it is:

(A) parallel to the chord
(B) equal to the chord
(C) a tangent
(D) perpendicular to the chord

Correct Answer: D

Explanation: If a diameter bisects a chord, it is perpendicular to the chord.

85. Equal chords in one circle are:

(A) the same distance from the centre
(B) always diameters
(C) always parallel
(D) always 90° apart

Correct Answer: A

Explanation: Congruent chords are equidistant from O.

86. If arc AB equals arc CD, then chord AB and chord CD are:

(A) perpendicular
(B) equal
(C) parallel always
(D) half the radius

Correct Answer: B

Explanation: Congruent arcs determine equal chords, so the correct choice is equal.

87. A semicircle is an arc whose central angle is:

(A) 90°
(B) 360°
(C) 180°
(D) 45°

Correct Answer: C

Explanation: A semicircle is an arc whose central angle is 180°.

88. An angle whose vertex is the centre and whose sides are radii to arc endpoints is:

(A) inscribed
(B) exterior only
(C) tangent
(D) central

Correct Answer: D

Explanation: Central angles use the centre as vertex.

89. Corresponding arcs of congruent chords are:

(A) congruent
(B) always major
(C) always unequal
(D) straight lines

Correct Answer: A

Explanation: Equal chords cut matching arcs, so the correct choice is congruent.

90. If central angles are equal, the subtended chords are:

(A) parallel always
(B) equal
(C) tangents
(D) diameters always

Correct Answer: B

Explanation: If central angles are equal, the subtended chords are equal.

91. Bridge design may use circular arcs because:

(A) chords are always vertical
(B) circles have no radius
(C) arcs distribute stress in curved supports
(D) arcs avoid geometry

Correct Answer: C

Explanation: Bridge design may use circular arcs because arcs distribute stress in curved supports.

92. Rainbows appear as:

(A) straight chords
(B) only diameters
(C) only tangents
(D) circular arc segments in ideal models

Correct Answer: D

Explanation: Ideal rainbow geometry uses circular arcs.

93. Roller coaster tracks combine:

(A) straight and curved sections including arcs
(B) only diameters
(C) only parallel chords
(D) only squares

Correct Answer: A

Explanation: Roller coaster tracks combine straight and curved sections including arcs.

94. The distance from centre to chord uses:

(A) only addition of radii
(B) Pythagoras with radius and half-chord
(C) law of sines only
(D) vector dot product only

Correct Answer: B

Explanation: Right triangle: $d^2 + (c/2)^2 = r^2$, so the correct choice is Pythagoras with radius and half-chord.

95. If r = 5 and d = 4, half-chord equals:

(A) 4
(B) 5
(C) 3
(D) 9

Correct Answer: C

Explanation: $\sqrt{(25 - 16)} = 3$, so full chord = 6 cm, so the correct choice is 3.

96. Two parallel chords closer to the centre are:

(A) shorter
(B) always equal to diameter
(C) tangents
(D) longer

Correct Answer: D

Explanation: Two parallel chords closer to the centre are longer.

97. A circular region includes:

(A) interior points and boundary
(B) only the boundary
(C) only the centre
(D) only diameters

Correct Answer: A

Explanation: Region = circle □ interior, so the correct choice is interior points and boundary.

98. Three collinear points:

(A) determine exactly one circle
(B) do not determine a unique circle
(C) determine two circles
(D) cannot lie in a plane

Correct Answer: B

Explanation: Three collinear points do not determine a unique circle.

99. A rectangle is cyclic because:

(A) all sides are tangents
(B) it has no right angles
(C) opposite angles sum to 180°
(D) diagonals are parallel

Correct Answer: C

Explanation: A rectangle is cyclic because opposite angles sum to 180°.

100. Thales' theorem: angle in a semicircle is:

(A) 180°
(B) 45°
(C) 60°
(D) 90°

Correct Answer: D

Explanation: An inscribed angle subtending a diameter is a right angle.

101. If n equal arcs are cut, each central angle is:

(A) 360°/n
(B) 180°/n
(C) 90°/n
(D) n° always

Correct Answer: A

Explanation: Full turn divided equally among n arcs, so the correct choice is 360°/n.

102. A quadrant arc subtends at the centre:

(A) 180°
(B) 90°
(C) 45°
(D) 360°

Correct Answer: B

Explanation: One quarter of a circle is 90°, so the correct choice is 90°.

103. Congruent circles mean:

(A) same centre always
(B) no chords
(C) equal radii
(D) only semicircles

Correct Answer: C

Explanation: Congruent circles match in size, so the correct choice is equal radii.

104. Theorem 9.3 is about:

(A) parallel chords only
(B) tangents only
(C) sector area only
(D) perpendicular from centre bisects chord

Correct Answer: D

Explanation: Foot of perpendicular from O to chord is the midpoint.

105. Theorem 9.4 is about:

(A) equal chords equidistant from centre
(B) arc length only
(C) triangle area
(D) vector addition

Correct Answer: A

Explanation: Congruent chords lie the same distance from O.

106. If chord = radius, the triangle formed by two radii and the chord is:

(A) right only
(B) equilateral
(C) impossible
(D) isosceles but never equilateral

Correct Answer: B

Explanation: All three sides equal r, so the correct choice is equilateral.

107. Sector area formula uses:

(A) $2\pi r$ only
(B) $r - d$
(C) $(\theta/360) \times \pi r^2$
(D) Heron's formula

Correct Answer: C

Explanation: Sector is the fraction $\theta/360$ of full area πr^2.

108. Arc length and central angle measure in degrees are:

(A) always supplementary
(B) unrelated
(C) always 90° apart
(D) numerically equal for the same arc

Correct Answer: D

Explanation: A 60° arc has a 60° central angle, so the correct choice is numerically equal for the same arc.