

CLASS 10 NCERT MATHEMATICS

WORKSHEET -2

CHAPTER: AREAS RELATED TO CIRCLES

Practice Multiple Choice Questions (50 Questions with Answer Key)

Q1. If the perimeter and the area of a circle are numerically equal, then the radius of the circle is:

- (a) 2 units (b) π units
(c) 4 units (d) 7 units

Q2. If the radius of a circle is doubled, its area becomes:

- (a) 2 times (b) 3 times
(c) 4 times (d) 8 times

Q3. The area of a circle of radius 'r' is given by:

- (a) $2\pi r$ (b) πr^2
(c) $\pi r^2/2$ (d) $2\pi r^2$

Q4. Perimeter of a sector of angle θ in a circle of radius r is:

- (a) $(\theta/360) \times 2\pi r$ (b) $(\theta/360) \times 2\pi r + 2r$
(c) $(\theta/360) \times \pi r^2$ (d) $(\theta/360) \times \pi r^2 + 2r$

Q5. Area of a sector of angle θ (in degrees) of a circle with radius r is:

- (a) $(\theta/180) \times 2\pi r$ (b) $(\theta/360) \times 2\pi r$
(c) $(\theta/360) \times \pi r^2$ (d) $(\theta/720) \times 2\pi r^2$

Q6. Length of an arc of a sector of angle θ in a circle of radius r is:

- (a) $(\theta/360) \times \pi r^2$ (b) $(\theta/180) \times \pi r$
(c) $(\theta/360) \times 2\pi r$ (d) Both (b) and (c)

Q7. If the circumference of a circle is 44 cm, then its area is:

- (a) 154 cm^2 (b) 308 cm^2
(c) 44 cm^2 (d) 77 cm^2

Q8. The diameter of a circle whose area is equal to the sum of the areas of two circles of radii 24 cm and 7 cm is:

- (a) 31 cm (b) 25 cm
(c) 50 cm (d) 62 cm

Q9. The radius of a circle whose circumference is equal to the sum of the circumferences of two circles of radii 15 cm and 9 cm is:

- (a) 24 cm (b) 12 cm
(c) 6 cm (d) 48 cm

Q10. If the area of a circle is 154 cm^2 , then its perimeter is:

- (a) 22 cm (b) 44 cm
(c) 11 cm (d) 88 cm

Q11. If the perimeter of a semi-circular protractor is 36 cm, then its radius is (take $\pi = 22/7$):

- (a) 14 cm (b) 7 cm
(c) 21 cm (d) 3.5 cm

Q12. Area of the largest triangle that can be inscribed in a semi-circle of radius r is:

- (a) r^2 (b) $1/2 r^2$
(c) $2 r^2$ (d) $\sqrt{2} r^2$

Q13. If the side of a square is 14 cm, then the area of the inscribed circle is:

- (a) 154 cm^2 (b) 196 cm^2
(c) 49 cm^2 (d) 616 cm^2

Q14. Area of a square that can be inscribed in a circle of radius 8 cm is:

- (a) 256 cm^2 (b) 128 cm^2
(c) 64 cm^2 (d) 512 cm^2

Q15. The difference between the circumference and radius of a circle is 37 cm. The area of the circle is ($\pi = 22/7$):

- (a) 111 cm^2 (b) 148 cm^2
(c) 154 cm^2 (d) 259 cm^2

Q16. If a minute hand of a clock is 14 cm long, the area swept by it in 5 minutes is:

- (a) $154/3 \text{ cm}^2$ (b) $154/6 \text{ cm}^2$
(c) $77/3 \text{ cm}^2$ (d) $308/3 \text{ cm}^2$

Q17. The angle subtended by the minute hand of a clock in 1 minute is:

- (a) 5° (b) 6°
(c) 10° (d) 12°

Q18. The angle subtended by the hour hand of a clock in 1 minute is:

- (a) $1/2^\circ$ (b) 1°
(c) 6° (d) 30°

Q19. If the radius of a circle is increased by 50%, its area is increased by:

- (a) 50% (b) 100%
(c) 125% (d) 150%

Q20. If the circumference of a circle increases from 2π to 4π , its area becomes:

- (a) Half (b) Double
(c) Triple (d) Quadruple

Q21. The area of a sector of a circle with radius 6 cm if angle of sector is 60° is:

- (a) $132/7 \text{ cm}^2$ (b) $144/7 \text{ cm}^2$
(c) $154/7 \text{ cm}^2$ (d) $66/7 \text{ cm}^2$

Q22. Area of a quadrant of a circle whose circumference is 22 cm is:

- (a) $77/8 \text{ cm}^2$ (b) $77/4 \text{ cm}^2$
(c) $77/2 \text{ cm}^2$ (d) $154/8 \text{ cm}^2$

Q23. The ratio of the area of a circle to the area of a square of side equal to the diameter of the circle is:

- (a) $\pi : 1$ (b) $\pi : 2$
(c) $\pi : 4$ (d) $2\pi : 1$

Q24. The area of a circular path of uniform width 'd' surrounding a circular park of radius 'r' is:

- (a) $\pi d(2r + d)$ (b) $\pi d(r + d)$
(c) $\pi d(2r - d)$ (d) $\pi r(2d + r)$

Q25. A wire is in the form of a circle of radius 28 cm. It is bent into a square. The side of the square is:

- (a) 44 cm (b) 22 cm
(c) 88 cm (d) 35 cm

Q26. If the perimeter of a circular field is 440 m, its radius is:

- (a) 70 m (b) 35 m
(c) 140 m (d) 105 m

Q27. If the radius of a circle is 7 cm, then the area of the minor segment formed by a central angle of 90° is (approx):

- (a) 14 cm^2 (b) 28 cm^2
(c) 38.5 cm^2 (d) 10.5 cm^2

Q28. The area of the circle that can be inscribed in a square of side 6 cm is:

- (a) $36\pi \text{ cm}^2$ (b) $18\pi \text{ cm}^2$
(c) $12\pi \text{ cm}^2$ (d) $9\pi \text{ cm}^2$

Q29. The area of a sector of angle p (in degrees) of a circle with radius R is:

- (a) $(p/180) \times 2\pi R$ (b) $(p/180) \times \pi R^2$
(c) $(p/360) \times 2\pi R$ (d) $(p/720) \times 2\pi R^2$

Q30. The wheel of a motor car makes 1000 revolutions in moving 440 m. The diameter of the wheel is:

- (a) 7 cm (b) 14 cm
(c) 28 cm (d) 14 m

Q31. Number of revolutions made by a circular wheel of radius 0.25 m in rolling a distance of 11 km is:

- (a) 2800 (b) 4000
(c) 5500 (d) 7000

Q32. A car travel 0.99 km distance. If the radius of its wheel is 35 cm, how many revolutions will the wheel take?

- (a) 450 (b) 500
(c) 400 (d) 600

Q33. If the area of a circle is A , radius is r and circumference is C , then which relation is true?

- (a) $rC = 2A$ (b) $rC = A$
(c) $AC = r^2/2$ (d) $C = 2Ar$

Q34. Area of a ring of outer radius R and inner radius r is:

- (a) $\pi(R - r)$ (b) $\pi(R^2 - r^2)$
(c) $\pi(R^2 + r^2)$ (d) $2\pi(R - r)$

Q35. If the ratio of the areas of two circles is 4 : 9, then the ratio of their circumferences is:

- (a) 2 : 3 (b) 4 : 9
(c) 16 : 81 (d) 1 : 2

Q36. If the ratio of circumferences of two circles is 3 : 1, the ratio of their areas is:

- (a) 3 : 1 (b) 9 : 1
(c) 1 : 3 (d) 1 : 9

Q37. The perimeter of a semi-circle of radius 'r' is:

- (a) πr (b) $\pi r + r$
(c) $\pi r + 2r$ (d) $2\pi r + 2r$

Q38. The area of a sector of a circle of radius 14 cm and central angle 45° is:

- (a) 77 cm^2 (b) 154 cm^2
(c) 38.5 cm^2 (d) 308 cm^2

Q39. An arc of a circle is of length 5π cm and the sector it bounds has an area of $20\pi \text{ cm}^2$. The radius of the circle is:

- (a) 4 cm (b) 8 cm
(c) 12 cm (d) 16 cm

Q40. The area of a circle is 38.5 cm^2 . Its circumference is:

- (a) 11 cm (b) 22 cm
(c) 33 cm (d) 44 cm

Q41. If the outer and inner radii of a ring are 10 cm and 4 cm respectively, then the area of the ring is:

- (a) $84\pi \text{ cm}^2$ (b) $60\pi \text{ cm}^2$
(c) $116\pi \text{ cm}^2$ (d) $144\pi \text{ cm}^2$

Q42. If the area of a sector of a circle is $7/20$ of the area of the circle, then the sector angle is:

- (a) 126° (b) 90°
(c) 135° (d) 140°

Q43. If the central angle of a sector is 90° , then the sector is called a:

- (a) Semi-circle (b) Quadrant
(c) Segment (d) Ring

Q44. The area of the major sector of a circle of radius r with sector angle θ is:

- (a) $(\theta/360) \times \pi r^2$ (b) $((360 - \theta)/360) \times \pi r^2$
(c) $((180 - \theta)/360) \times \pi r^2$ (d) $\pi r^2 - \theta$

Q45. If a chord of a circle of radius 10 cm subtends a right angle at the centre, the area of minor sector is (use $\pi = 3.14$):

- (a) 78.5 cm^2 (b) 314 cm^2
(c) 157 cm^2 (d) 39.25 cm^2

Q46. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. The length of the arc is:

- (a) 22 cm (b) 44 cm
(c) 11 cm (d) 33 cm

Q47. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. The area of sector formed by the arc is:

- (a) 231 cm^2 (b) 462 cm^2
(c) 154 cm^2 (d) 308 cm^2

Q48. The area of a segment of a circle is equal to:

- (a) Area of sector + Area of triangle (b) Area of sector - Area of triangle
(c) Area of circle - Area of sector (d) None of these

Q49. If the perimeter of a circle is equal to that of a square, then the ratio of their areas is:

- (a) 22 : 7 (b) 14 : 11
(c) 7 : 22 (d) 11 : 14

Q50. A horse is tied to a peg at one corner of a square shaped grass field of side 15 m by means of a 5 m long rope. The area of that part of the field in which the horse can graze is ($\pi = 3.14$):

- (a) 19.625 m^2 (b) 78.5 m^2
(c) 9.8125 m^2 (d) 25 m^2

ANSWER KEY & SOLUTIONS GUIDE

Q.No - Ans	Q.No - Ans	Q.No - Ans	Q.No - Ans	Q.No - Ans
Q1: (a) 2 units	Q11: (b) 7 cm	Q21: (a) $132/7 \text{ cm}^2$	Q31: (d) 7000	Q41: (a) $84\pi \text{ cm}^2$
Q2: (c) 4 times	Q12: (a) r^2	Q22: (a) $77/8 \text{ cm}^2$	Q32: (a) 450	Q42: (a) 126°
Q3: (b) πr^2	Q13: (a) 154 cm^2	Q23: (c) $\pi : 4$	Q33: (a) $rC = 2A$	Q43: (b) Quadrant
Q4: (b) $(\theta/360) \times 2\pi r + 2r$	Q14: (b) 128 cm^2	Q24: (a) $\pi d(2r + d)$	Q34: (b) $\pi(R^2 - r^2)$	Q44: (b) $((360 - \theta)/360) \times \pi r^2$
Q5: (c) $(\theta/360) \times \pi r^2$	Q15: (c) 154 cm^2	Q25: (a) 44 cm	Q35: (a) 2 : 3	Q45: (a) 78.5 cm^2
Q6: (d) Both (b) and (c)	Q16: (a) $154/3 \text{ cm}^2$	Q26: (a) 70 m	Q36: (b) 9 : 1	Q46: (a) 22 cm
Q7: (a) 154 cm^2	Q17: (b) 6°	Q27: (d) 10.5 cm^2	Q37: (c) $\pi r + 2r$	Q47: (a) 231 cm^2
Q8: (c) 50 cm	Q18: (a) $1/2^\circ$	Q28: (d) $9\pi \text{ cm}^2$	Q38: (c) 38.5 cm^2	Q48: (b) Area of sector - Area of triangle
Q9: (a) 24 cm	Q19: (c) 125%	Q29: (d) $(p/720) \times 2\pi R^2$	Q39: (b) 8 cm	Q49: (b) 14 : 11
Q10: (b) 44 cm	Q20: (d) Quadruple	Q30: (c) 28 cm	Q40: (b) 22 cm	Q50: (a) 19.625 m^2