

MATHEMATICS**CLASS -10****Chapter – AREA RELATED TO CIRCLES****“WORKSHEET - 1”**

Practice Multiple Choice Questions (50 Questions with Answer Key)

Q1. The formula for the area of a circle of radius r is:

- (A) $2\pi r$
- (B) πr^2
- (C) πd
- (D) $2\pi r^2$

Q2. The perimeter (circumference) of a circle of radius r is:

- (A) πr^2
- (B) $2\pi r$
- (C) πr
- (D) $4\pi r$

Q3. The area of a sector of angle θ (in degrees) of a circle with radius r is:

- (A) $(\theta/180) \times \pi r^2$
- (B) $(\theta/360) \times \pi r^2$
- (C) $(\theta/360) \times 2\pi r$
- (D) $(\theta/180) \times 2\pi r$

Q4. The length of an arc of a sector of angle θ (in degrees) of a circle with radius r is:

- (A) $(\theta/360) \times \pi r^2$
- (B) $(\theta/180) \times \pi r^2$
- (C) $(\theta/360) \times 2\pi r$
- (D) $(\theta/180) \times 2\pi r$

Q5. 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

Q6. Area of the largest triangle that can be inscribed in a semicircle of radius r is:

- (A) r^2
- (B) $2r^2$
- (C) $r^3/2$
- (D) $2r$

Q7. The ratio of the areas of two circles is 4:9. The ratio of their radii is:

- (A) 2:3
- (B) 4:9
- (C) 3:2
- (D) 16:81

Q8. The ratio of the circumferences of two circles is 3:4. The ratio of their areas is:

- (A) 3:4
- (B) 9:16
- (C) 16:9
- (D) $\sqrt{3}:2$

Q9. The distance covered by a wheel of radius 28 cm in one revolution is (use $\pi = 22/7$):

- (A) 88 cm
- (B) 176 cm
- (C) 44 cm
- (D) 154 cm

Q10. The angle described by the minute hand of a clock in 1 minute is:

- (A) 1°
- (B) 3°
- (C) 5°
- (D) 6°

Q11. The area of a quadrant of a circle of radius r is:

- (A) $\pi r^2/2$
- (B) πr^2
- (C) $\pi r^2/4$
- (D) $2\pi r^2$

Q12. Perimeter of a semicircular protractor of radius r is:

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

Q13. If the radius of a circle is doubled, its area becomes:

- (A) 2 times
- (B) 3 times
- (C) 4 times
- (D) 8 times

Q14. If the circumference of a circle is doubled, its area becomes:

- (A) 2 times
- (B) 4 times
- (C) 8 times
- (D) 16 times

Q15. A horse is tied to a peg at one corner of a square grass field with a 7 m long rope. The area it can graze is:

- (A) 154 m^2
- (B) 38.5 m^2
- (C) 77 m^2
- (D) 49 m^2

Q16. What is the area of a circle whose circumference is 44 cm?

- (A) 154 cm^2
- (B) 308 cm^2
- (C) 77 cm^2
- (D) 616 cm^2

Q17. The area of a square inscribed in a circle of radius r is:

- (A) r^2
- (B) $2r^2$
- (C) $4r^2$
- (D) πr^2

Q18. If R_1 and R_2 are radii of two circles and R is the radius of a circle such that $\text{Area}(R) = \text{Area}(R_1) + \text{Area}(R_2)$, then:

- (A) $R = R_1 + R_2$
- (B) $R^2 = R_1^2 + R_2^2$
- (C) $R > R_1 + R_2$
- (D) $R < R_1 + R_2$

Q19. If R_1 and R_2 are radii of two circles and R is the radius of a circle such that $\text{Circumference}(R) = \text{Circumference}(R_1) + \text{Circumference}(R_2)$, then:

- (A) $R = R_1 + R_2$
- (B) $R^2 = R_1^2 + R_2^2$
- (C) $R > R_1 + R_2$
- (D) $R < R_1 + R_2$

Q20. If the difference between circumference and radius of a circle is 37 cm, then the area of the circle is (use $\pi = 22/7$):

- (A) 111 cm^2
- (B) 148 cm^2
- (C) 154 cm^2
- (D) 259 cm^2

Q21. The area of a circle is 154 cm^2 . Its radius is:

- (A) 7 cm
- (B) 14 cm
- (C) 21 cm
- (D) 3.5 cm

Q22. The perimeter of a sector of a circle of radius 7 cm and central angle 90° is:

- (A) 11 cm
- (B) 25 cm
- (C) 14 cm
- (D) 36 cm

Q23. A steel wire when bent in the shape of a square encloses an area of 121 sq cm . If the same wire is bent in the form of a circle, the area of the circle is:

- (A) 154 cm^2
- (B) 121 cm^2

- (C) 144 cm^2
- (D) 44 cm^2

Q24. A pendulum swings through an angle of 30° and describes an arc 8.8 cm in length. The length of the pendulum is (use $\pi = 22/7$):

- (A) 14 cm
- (B) 16.8 cm
- (C) 15 cm
- (D) 21 cm

Q25. Outer and inner diameters of a circular ring are 34 cm and 32 cm. Its area is:

- (A) $66\pi \text{ cm}^2$
- (B) $33\pi \text{ cm}^2$
- (C) $16.5\pi \text{ cm}^2$
- (D) $132\pi \text{ cm}^2$

Q26. The circumference of a circle is 100 cm. The side of a square inscribed in the circle is:

- (A) $50\sqrt{2}/\pi \text{ cm}$
- (B) $100/\pi \text{ cm}$
- (C) $50\sqrt{2} \text{ cm}$
- (D) $100\sqrt{2}/\pi \text{ cm}$

Q27. The area of the minor segment of a circle of radius 14 cm, when its central angle is 90° , is:

- (A) 154 cm^2
- (B) 56 cm^2
- (C) 98 cm^2
- (D) 42 cm^2

Q28. 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

Q29. Area of a 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) $9\pi \text{ cm}^2$

Q30. The length of the minute hand of a clock is 14 cm. The area swept by the minute hand in 5 minutes is:

- (A) 154 cm^2
- (B) 51.33 cm^2
- (C) 25.66 cm^2
- (D) 77 cm^2

Q31. A piece of wire 20 cm long is bent into the form of an arc of a circle subtending an angle of 60° at its centre. The radius of the circle is:

- (A) $60/\pi \text{ cm}$
- (B) $30/\pi \text{ cm}$
- (C) $20/\pi \text{ cm}$
- (D) $40/\pi \text{ cm}$

Q32. What is the angle subtended at the centre by an arc of length 11 cm in a circle of radius 14 cm?

- (A) 45°
- (B) 30°
- (C) 60°
- (D) 90°

Q33. The area of a circle whose area and circumference are numerically equal is:

- (A) $2\pi \text{ sq units}$
- (B) $4\pi \text{ sq units}$
- (C) $6\pi \text{ sq units}$
- (D) $8\pi \text{ sq units}$

Q34. If the sum of the areas of two circles with radii r_1 and r_2 is equal to the area of a circle of radius r , then:

- (A) $r = r_1 + r_2$
- (B) $r_1^2 + r_2^2 > r^2$
- (C) $r_1^2 + r_2^2 = r^2$
- (D) $r_1^2 + r_2^2 < r^2$

Q35. The number of revolutions made by a circular wheel of radius 0.7 m in rolling a distance of 176 m is (use $\pi = 22/7$):

- (A) 22
- (B) 24
- (C) 75
- (D) 40

Q36. 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) $(p/360) \times \pi R^2$

Q37. The area of the circle that can be inscribed in a square of side a is:

- (A) πa^2
- (B) $\pi a^2/2$
- (C) $\pi a^2/4$
- (D) $2\pi a^2$

Q38. A wheel has diameter 84 cm. Find how many complete revolutions must it make to cover 792 metres.

- (A) 300
- (B) 250
- (C) 350
- (D) 200

Q39. The radius of a circle is 50 cm. If its circumference is decreased by 50%, its area will decrease by:

- (A) 25%
- (B) 50%
- (C) 75%
- (D) 100%

Q40. The ratio of the areas of a circle and an equilateral triangle whose diameter and a side are respectively equal is:

- (A) $\pi : \sqrt{2}$
- (B) $\pi : \sqrt{3}$
- (C) $\sqrt{3} : \pi$
- (D) $2 : \pi$

Q41. If a regular hexagon is inscribed in a circle of radius r , then its perimeter is:

- (A) $3r$
- (B) $6r$
- (C) $9r$
- (D) $12r$

Q42. The area of a circular path of uniform width h surrounding a circular region of radius r is:

- (A) πh^2
- (B) $\pi h(2r + h)$
- (C) πr^2
- (D) $\pi(r^2 + h^2)$

Q43. The distance walked by a boy in 100 revolutions of a wheel is 314 m. If $\pi = 3.14$, the diameter of the wheel is:

- (A) 1 m
- (B) 2 m
- (C) 0.5 m
- (D) 1.5 m

Q44. If the area of a semicircular field is 30800 sq. m, then the perimeter of the field is:

- (A) 360 m
- (B) 720 m
- (C) 510 m
- (D) 1080 m

Q45. The area of a circle is doubled. By what percent is its radius increased? (approx)

- (A) 41.4%
- (B) 50%
- (C) 100%
- (D) 200%

Q46. If the sector of a circle of measure 90° has an area of 154 cm^2 , then the radius of the circle is:

- (A) 14 cm
- (B) 7 cm
- (C) 21 cm
- (D) 28 cm

Q47. If the radius of a circle is increased by 10%, its area is increased by:

- (A) 10%
- (B) 20%
- (C) 21%
- (D) 100%

Q48. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

- (A) 4 cm
- (B) 5 cm
- (C) 8 cm
- (D) 10 cm

Q49. The area of the largest circle that can be drawn inside a rectangle with sides 18 cm by 14 cm is:

- (A) 154 cm^2
- (B) 252 cm^2
- (C) 308 cm^2
- (D) 616 cm^2

Q50. The ratio of the area of a circle and the area of a semicircle with the same radius is:

- (A) 1:2
- (B) 2:1
- (C) 1:4
- (D) 4:1

Answer Key

Q1 – B	Q2 – B	Q3 – B	Q4 – C	Q5 – A
Q6 – A	Q7 – A	Q8 – B	Q9 – B	Q10 – D
Q11 – C	Q12 – B	Q13 – C	Q14 – B	Q15 – B
Q16 – A	Q17 – B	Q18 – B	Q19 – A	Q20 – C
Q21 – A	Q22 – B	Q23 – A	Q24 – B	Q25 – B
Q26 – A	Q27 – B	Q28 – B	Q29 – D	Q30 – B
Q31 – A	Q32 – A	Q33 – B	Q34 – C	Q35 – D
Q36 – D	Q37 – C	Q38 – A	Q39 – C	Q40 – B
Q41 – B	Q42 – B	Q43 – A	Q44 – B	Q45 – A
Q46 – A	Q47 – C	Q48 – C	Q49 – A	Q50 – B