

## Areas Related to Circles

<1M>

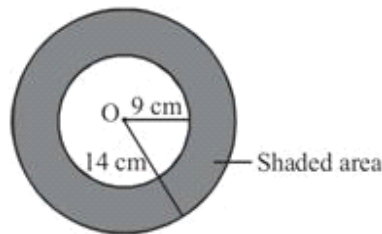
1.If the diameter of circle be  $d$ , then area of circle is

- (A)  $\pi d^2$       (B)  $d/2^2$       (C)  $\frac{\pi d^2}{4}$       (D) None of these

2.Radius of a circle is 42 cm. An arc subtends an angle of  $60^\circ$ . What is the length of arc ?

- (A) 22 cm      (B) 44 cm      (C) 66 cm      (D) 88 cm

3.Radii of two concentric circle is 7 cm and 14 cm. The shaded area between them is equal to



- (A)  $42\pi$       (B)  $84\pi$       (C)  $21\pi$       (D) None of these

4.The area of a sector of a circle is  $\frac{1}{6}$  th of area of circle what is angle made by sector?

- (A)  $80^\circ$       (B)  $70^\circ$       (C)  $60^\circ$       (D) None of these

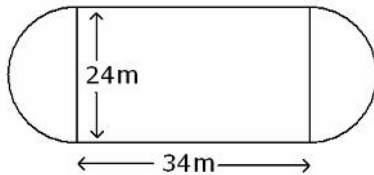
5.The circumference of a circle exceeds its diameter by 16.8 cm. Find the radius of circle.

6.A sector is cut off from a circle of radius 28 cm. The angle of the sector is  $120^\circ$ . Find the length of arc and area.

7.The length of minute hand of a clock is 21 cm. Find the area swept by the clock in 2 minutes.

8. A sheet of paper is in the form of rectangle ABCD in which AB = 40 cm and AD = 28 cm. A semi circle portion with BC as diameter is cut off. Find the area of the remaining part of the rectangle.

9. A play ground has the shape of a rectangle, with two semi-circles on its smaller sides as diameter, added to its outside. If the sides of the rectangle are 36m and 24m, find the area of the playground.



10. A chord of a circle of radius 6 cm, subtends an angle  $60^\circ$  with the center A then the area of corresponding segment of the circle is

- (A)  $3.27 \text{ cm}^2$       (B)  $6 \text{ cm}^2$       (C)  $6.8 \text{ cm}^2$       (D) None of these

11. A car has two wipers which do not overlap. Each wiper has a blade of length, 25 cm sweeping through an angle of  $115^\circ$ . Find the total area cleaned at each sweep of the blades

- (A)  $478.29 \text{ cm}^2$       (B)  $627.48 \text{ cm}^2$       (C)  $444 \text{ cm}^2$       (D)  $528 \text{ cm}^2$

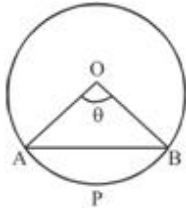
12. The wheel of car is of radius 40 cm each. How many complete revolution does each wheel makes in 20 sec. If the speed of car is 22m/s ?

- (A) 500      (B) 150      (C) 175      (D) None of these

13. The length of the minute hand of a clock is 28 cm, and then what is the area swept by the minute hand in 15 minutes?

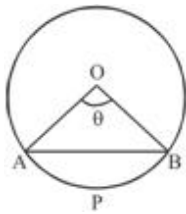
- (A)  $308 \text{ cm}^2$       (B)  $784 \text{ cm}^2$       (C)  $896 \text{ cm}^2$       (D)  $616 \text{ cm}^2$

14. The area of sector OAPB is



- (A)  $\frac{\pi r^2 \theta}{360^\circ}$  (B)  $\frac{2\pi r^2 \theta}{180^\circ}$  (C)  $\frac{\pi r^2 \theta^2}{360^\circ}$  (D) None of these

15. The length of arc APB is

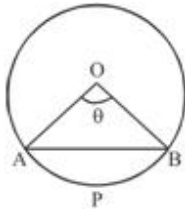


- (A)  $\frac{2\pi r \theta}{360^\circ}$  (B)  $\frac{\pi r^2 \theta}{360^\circ}$  (C)  $\frac{2\pi r^2 \theta}{360^\circ}$  (D) None of these

16. The cost of fencing a circular field at the rate of Rs 12 meter is Rs 2640 find the area of circle

- (A) 3300 m<sup>2</sup> (B) 3850 m<sup>2</sup> (C) 4400 m<sup>2</sup> (D) 5500 m<sup>2</sup>

17. If the radius of the given figure is 4 cm and angle is 60° the area of segment OAPB is



- (A)  $\frac{2}{5}\pi$       (B)  $\frac{8}{3}\pi$       (C)  $\frac{4}{3}\pi$       (D)  $4\pi$

18. The radii of two circles are 3 cm and 4 cm. Then the radius of the circle having area equal to the sum of the areas of two circles is equal to

- (A) 5 cm      (B) 7 cm      (C) 8 cm      (D) none of these

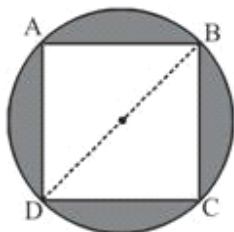
19. The ratio of the areas of the incircle and circumcircle of a square is

- (A) 1:  $\sqrt{2}$       (B) 1:  $\sqrt{3}$       (C) 1:9      (D) 1:2

20. A horse is tied to a peg at center of a field by 10 m long rope, then what is the area of grass grazed by the horse?

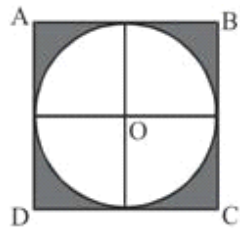
- (A)  $50\pi \text{ cm}^2$       (B)  $75\pi \text{ cm}^2$       (C)  $100\pi \text{ cm}^2$       (D)  $150\pi \text{ cm}^2$

21. Find the area of shaded part of given circle if one side of given square be 10 cm. [take  $\pi = 3.14$ ]



- (A)  $57 \text{ cm}^2$       (B)  $114 \text{ cm}^2$       (C)  $171 \text{ cm}^2$       (D)  $228 \text{ cm}^2$

22. In the given figure, if the side of square ABCD is 2 cm. Then what is the area of shaded region ?



- (A)  $2 - \pi$                       (B)  $7 - \pi$                       (C)  $4 - \pi$                       (D)  $8 - \pi$

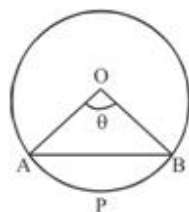
23. An umbrella has 8 ribs which are equally spaced. Assuming umbrella to be a flat circle of radius 42 cm. The area between the two consecutive ribs of the umbrella is equal to

- (A)  $660 \text{ cm}^2$                       (B)  $693 \text{ cm}^2$                       (C)  $770 \text{ cm}^2$                       (D)  $774 \text{ cm}^2$

24. What is the area between two concentric circles of radii 21 cm and 7 cm?

- (A)  $1156 \text{ cm}^2$                       (B)  $1232 \text{ cm}^2$                       (C)  $1330 \text{ cm}^2$                       (D)  $1460 \text{ cm}^2$

25. The length of segment APB is if angle is 30 degree and radius of circle is 6 cm



- (A)  $\pi$                       (B)  $2\pi$                       (C)  $3\pi$                       (D)  $4\pi$

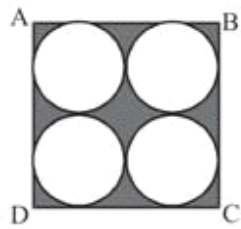
26. An arc makes an angle of  $72^\circ$  at the center of a circle of radius 10 cm. Its length will be .

- (A)  $4\pi$  cm                      (B)  $8\pi$  cm                      (C)  $6\pi$                       (D)  $7\pi$

27. What is the area of a sector of a circle which radius is 5 cm and angle of the sector is  $72^\circ$  ?

- (A)  $25\pi$                       (B)  $20\pi$                       (C)  $15\pi$                       (D)  $5\pi$

28. If ABCD is a square which each side is  $28\text{ cm}^2$ , then the area of shaded region is



- (A)  $42\text{ cm}^2$                       (B)  $84\text{ cm}^2$                       (C)  $168\text{ cm}^2$                       (D)  $336\text{ cm}^2$

29. If a wire is bent into the shape of square, the area of square is  $196\text{ cm}^2$ . When the wire is bent into circular shape, the area of circle is

- (A)  $233\text{ cm}^2$                       (B)  $626\text{ cm}^2$                       (C)  $154\text{ cm}^2$                       (D) none of these

30. Area of circle inscribed in an equilateral triangle is  $462\text{ sq cm}$ . The perimeter of the triangle is.

- (A)  $42\sqrt{3}\text{ cm}$                       (B)  $126\text{ cm}$                       (C)  $72.6\text{ cm}$                       (D)  $168\text{ cm}$

31. The area of a circle inscribed in an equilateral triangle is  $154\text{ sq cm}$ . Find the perimeter of the triangle.

32. A park is in the form of a rectangle  $120\text{m} \times 100\text{m}$ . At the center of the park there is a circular lawn. The area of park excluding lawn is  $8700$  square metres. Find the radius of the lawn.

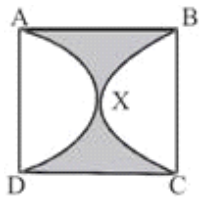
33. The area enclosed between the concentric circle is  $770$  sqcm. If the radius of the outer circle is  $21$  cm, find the radius of the inner circle.

34. A chord AB of a circle, of radius  $14\text{cm}$  makes an angle of  $60$  degree at the centre of the circle. Find the area of the minor segment of the circle.

35. Area of quadrant of a circle which circumference is  $44\text{cm}$  is equal to

- (A)  $154\text{ cm}^2$                       (B)  $38.5\text{cm}^2$                       (C)  $77\text{cm}^2$                       (D)  $22\text{ cm}^2$

36. What is the area of shaded region? If ABCD is a square of side  $14$  cm and A  $\times$  D and B  $\times$  C are semicircle?



- (A)  $21\text{ cm}^2$                       (B)  $42\text{ cm}^2$                       (C)  $63\text{ cm}^2$                       (D)  $84\text{ cm}^2$

<3M>

37. A copper wire is bent in the form of square, enclosing an area of  $625$  sq.cm. If the same wire is bent in the form of a circle what will be its area?

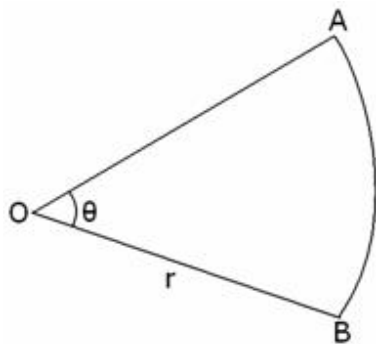
<4M>

38. A road which is 7m wide surrounded a circular park whose circumference is 352 m. Find the area of the road.

39. The diagram shows a sector of a circle of radius  $r$  cm containing an angle  $\theta^\circ$ . The area of sector is  $A$  sq.cm. and perimeter of the sector is 50cm. Prove that

i.  $\theta^\circ = \frac{360}{\pi} \left( \frac{25}{r} - 1 \right)$

ii.  $A = 25r - r^2$



40. Four equal circles, each of radius 7cm touch each other as shown in figure. Find the area included between them.

