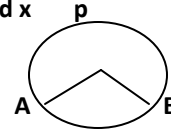


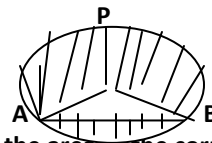
SUB: MATHEMATICS
TOPIC: AREAS RELATED TO CIRCLES

CLASS: X

- 1) A bicycle wheel makes 5000 revolution in moving 11 km. find the diameter of the wheel (d = 70 cm)
 2) In the figure o is the centre of a circle. The area of sector OAPB is $\frac{5}{18}$ of the area of the circle. Find x (100°)



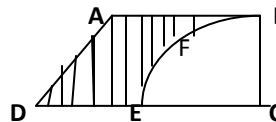
- 3) Area of a sector of a circle is $\frac{1}{6}$ to the area of circle. Find the degree measure of its minor arc (60°)
 4) If the diameter of a semi circle protractor is 14 cm. Find its perimeter (36cm)
 5) The circumference of a circle A is 132cm. It is equal to the sum of the circumference of two circles B & C, the radius of the circle B is 14cm. Find the radius of circle C. (r = 7 cm)
 6) The area of quadrant is 154sq cm. Find its perimeter. (50 cm)
 7) A circular disc of 6cm radius is divided into 3 sectors with central angles 120°, 150° and 90°. Find the ratio of the areas of 3 Sectors (4: 5: 3)
 8) The difference between circumferences and diameter of a circle is 105 cm. Find the radius of the circle (24.5 cm)
 9) Find the area of a major sector of a circle of diameter 42 cm and central angle is 60° (1155cm²)
 10) If the area and circumference of a circle are numerically equal, then find the radius of the circle (2cm)
 11) The length of a rope by which a cow is tethered is increased from 16m to 23m. How much additional area can the cow graze? Now ($\pi = \frac{22}{7}$) (2.38 Θ m²)
 12) What will be the increase in area of circle if its radius is increased by 40% (96%)
 13) The radius of the wheel of a bus is 70cm, how many revolutions per minute must a wheel make in order to move at a speed of 66 km/h (250)
 14) An arc of a circle is of length 5π cm and the sector it bounds has an area of 20π cm². Find the radius of the circle (8cm)
 15) The circumference of a circle exceeds the diameter by 16.8cm. Find the radius of circle (3.92cm)
 16) The area enclosed between two concentric circles is 770 sq cm. If the radius of outer circle is 21cm. Find the radius of the inner circle. (14 cm)
 17) The length of the minute hand of a clock is 7cm. How much area does it sweep in 20minutes (154/3 cm²)
 18) The perimeter of a sector of a circle of radius 5.2cm is 16.4cm. Find the area of sector (15.6cm²)
 19) Given a circle of radius 9cm, and the length of the chord AB of a circle is $9\sqrt{3}$ cm, find the area of the sector formed by arc AB. (84. 85 cm²)
 20) Length of minor arc of a circle of radius 10 cm is 14cm. Find the area of minor sector of a circle. (70cm²)
 21) A chord AB of a circle of radius 14cm makes a right angle at the centre of the circle. Find the area of the minor segment. ($\pi = \frac{22}{7}$) (56 cm²)
 22) Find the area of the major segment APB, in figure of a circle of radius 35 cm and $\angle AOB = 90^\circ$ ($\pi = \frac{22}{7}$)



(3500 cm²)

- 23) A chord of a circle of radius 14cm subtends an angle of 120° at the centre Find the area of the corresponding minor segment of The circle ($\pi = \frac{22}{7}$, $\sqrt{3} = 1.73$) (120.56 cm²)

- 24) From a thin metallic piece, in the shape of a trapezium ABCD in which AB || CD and $\angle BCD = 90^\circ$, a quarter circle BFEC is removed. Given AB = BC = 3.5 cm and DE = 2cm, calculate the area of the remaining (shaded) part of the metal sheet ($\pi = \frac{22}{7}$)



(6.125 cm²)

SUB: MATHEMATICS**CLASS: X****TOPIC: SURFACE AREAS AND VOLUMES**

- 1) A well of a diameter 3m is 14m deep dug the earth taken out of its spread evenly all around it to form an embankment of width 4m. Find the height of the embankment (1.125m)
- 2) Three cubes of each side 5 cm are joined end to end. Find the surface area of the resulting cuboids (350 cm²)
- 3) A solid cylinder of diameter 12 cm and height 15 cm is melted and recast into toys with the shape of a right circular cone mounted on a hemisphere of radius 3cm, if the height of the toy is 12 cm, find the number of toys (12)
- 4) The surface area of a sphere is 616 cm². Find its radius (7 cm)
- 5) A bucket made up of a metal sheet is in the form of a frustum of a cone of high 16cm with diameter of its lower and upper end are 16cm and 40cm Find the volume of the bucket. (10449.92cm³)
- 6) A farmer connects a pipe of internal diameter 20cm from a canal into a cylindrical tank in the field which is 10m in diameter and 2 meter deep? If water flows through the pipe at the rate of 6km per hour. In how much time the tank will be filled (5/6hrs)
- 7) The sum of the radius of the base and height of a solid cylinder is 37cm. If the total surface area of the solid cylinder is 1628sqcm. Find the volume of the cylinder. (4620cm³)
- 8) A path of 7m width runs around outside a circular park whose radius 18m. Find the area of path (946cm²)
- 9) A rocket in the form of a circular cylinder closed at the lower end. The diameter and height of the cylinder is 6m and 12m. The Cylindrical portion is Surmounted by a cone of the same radius that of cylinder, the slant height of the conical portion is 5cm. Find its total surface area and volume (301.44 cm², 376/8cm³)
- 10) How many spherical lead shots each 4.2cm in diameter can be obtained from a rectangular solid of Lead with dimensions 66cm, 42cm and 21cm. (1500)
- 11) A cube and cuboids have the same volume, the dimension of the cuboid are in the ratio 1:2:4. If the difference between the Cost of polishing the cuboid and the cube at the rate of Rs 5 per sq m is Rs 80. Find their volumes
- 12) A solid right circular cone of diameter of 14cm and height 8 cm is melted to form a hollow sphere. If the external diameter of the sphere is 10cm. Find its internal diameter. (6cm)
- 13) A cone of base radius 20cm is divided into two parts by drawing a plane through the mid point of its Axis parallel to its base. Find the ratio of the Volume of the two parts. (1:7)
- 14) A cylindrical pipe has inner diameter of 7cm. Water is flowing through it at 192.5 liters per minute. Find the speed of the flow of water in km/hr.
- 15) A solid is in the form of a cylinder with hemispherical ends. The total height of the solid is 19cm and the diameter of the Cylinder is 7 cm. Find the total surface area of a solid. (418cm²)
- 16) A bucket is in the form of a frustum of a cone with a capacity of 12308.8 cucm. The radii of the top and Bottom are 20cm and 12cm. Find the height of the bucket (15cm)
- 17) 21 Glass spheres each of radius 2cm are packed in a cuboidal box of internal dimensions 16cmx8cmx8cm and the box is filled with water. Find the volume of water filled in the box (320cm³)
- 18) The slant height of a frustum of a cone is 5 cm. If the difference between the radii of its two circular ends is 4 cm, write the height of the frustum (3 cm)
- 19) The radii of the internal and external surfaces of a metallic spherical shell are 3 cm and 5 cm reactively. It is melted and recast into a solid right circular cylinder of height 10 $\frac{3}{4}$ cm. Find the diameter of the base of the cylinder (7cm)
- 20) Three cubes of a metal whose edges are in the ratio 3: 4: 5 are melted and converted into a single cube whose diagonal is $12\sqrt{3}$. Find the edges of three cubes (6, 8, 10)
- 21) A tent is made in the form of a frustum of cone surmounted by another cone as shown in the figure. The diameters of the Frustum is 24m and 8m and the height of the frustum is 15m. If the total height of the tent is 18m, find the Quantity of Canvas required. Find the cost at Rs 7 per sqm (Rs 6423)
- 22) A cylinder and a cone are of same base radius and of same height. Find the ratio of the volume of cylinder to that of the cone (3:1)
- 23) A spherical copper shell, of external diameter 18cm, is melted and recast into a solid cone of base radius 14cm and Height $4\frac{3}{7}$ cm Find the inner diameter of the shell (16cm)
- 24) The radii of the circular ends of a solid frustum of a cone are 18 cm and 12 cm and its height is 8 cm. Find its total Surface area
- 25) The surface area of the sphere and cube are numerically equal. Prove that the volumes are in the ratio $\sqrt{6} : \sqrt{\pi}$
- 26) A hollow sphere of internal and external diameters 4cm and 8cm respectively is melted to form a cone of base diameter 8cm. Find the height and the slant height of the cone (14cm, $2\sqrt{53}$ cm)
- 27) The radius of the base and the height of a right circular cylinder are in the ratio 2: 3 and its volume is 1617 cu. Cm. Find the Curved surface area of the cylinder ($\pi = \frac{22}{7}$) (462cm²)