

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2024-25

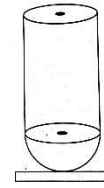
CLASS: X SUBJECT: MATHEMATICS DATE: 30-11-2024

LESSON 13: SURFACE AREAS AND VOLUMES

Level 1:

1. Three cubes each of side 5cm are joined end to end. Find the surface area of the resulting solid (Ans: 350cm^2)
2. From a solid cube of side 14cm, a sphere of maximum diameter is carved out. Then the radius of the sphere is (Ans: 7cm)
3. Two cones with the same base radius of 8cm and height of 15cm are joined together along their bases. Find the surface area of the shapes so formed (Ans: 855cm^2)
4. A solid is in the shape of a right circular cone surmounted on a hemisphere the radius of each of them being 3.5cm and the total height of the solid is 9.5cm. Find the volume of the solid (Ans: 166.83cm^3)
5. A solid is in the shape of a cone mounted on a hemisphere of the same base radius. If the curved surface areas of the hemispherical part and the conical part are equal, then find the ratio of the radius and the height of the conical part (Ans: $1 : \sqrt{3}$)
6. The $\frac{3}{4}$ th part of a conical vessel of internal radius 5cm and height 24cm is full of water. The water emptied into a cylindrical vessel with an internal radius of 10cm. Find the height of water in the cylindrical vessel (Ans: 1.5cm)
7. A vessel full of water is in the form of an inverted cone of height 8cm and the radius of its top which is open, is 5cm. 100 spherical lead balls are dropped into the vessel, and one-fourth of the water flows out of the vessel. Find the radius of the spherical ball (Ans: 0.5cm)
8. A tent is in the shape of a cylinder surmounted by a conical top. If the height and radius of the cylindrical part are 3m and 14m respectively and the total height of the tent is 13.5m, Find the area of the canvas required for making the tent, keeping a provision of 26m^2 of canvas for stitching and wastage. Also find the cost of the canvas to be purchased at the rate of ₹ 500 per m^2 (1060m^2 , ₹30000)
9. The dimensions of a metallic cuboid are $100\text{cm} \times 80\text{cm} \times 64\text{cm}$. It is melted and recast into the cube. Find the Surface area of the cube (Ans: 38400cm^2)
10. A hemispherical bowl of internal diameter 36cm contains a liquid. This liquid is to be filled in cylindrical bottles of radius 3cm and height 6cm. How many bottles are required to empty the bowl (Ans: 72)
11. A spherical glass vessel has a cylindrical neck 7cm long, 4cm in diameter, and the diameter of the spherical part is 21cm. Find the quantity of water it can hold (Ans: 4939cm^3)
12. A trophy awarded to the best student in the class is in the form of a solid cylinder mounted on a solid hemisphere with the same radius and is made from some metal. This trophy is mounted on a wooden cuboid as shown in the figure. The diameter of

the hemisphere is 21cm and the total height of the trophy is 24.5cm. Find the weight of the metal used in making the trophy, if the weight of 1cm^3 of the metal is 1.2g



(Ans: 8.7318kg)

13. A conical hole is drilled in a circular cylinder of height 15cm and radius 8cm, which has the same height and same base radius. Find the total surface area after drilling of cone ($\pi = 3.14$)

(Ans: 1381.6m^2)

Level 2:

14. Water in a canal, 6m wide and 1.5m deep, is flowing at a speed of 10km/hour. How much area will it irrigate in 30 minutes, if 8cm of standing water is needed

(Ans: 562500m^2)

15. Water is flowing at the rate of 15km/h through a cylindrical pipe of diameter 14cm into a cuboidal pond which is 50m long and 44m wide. At what time the level of water in the pond rise by 21cm

(Ans: 2h)
