

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2023-24

CLASS: X SUBJECT: MATHEMATICS DATE:21-11-2023

LESSON:13 – SURFACE AREAS AND VOLUMES

Level 1:

1. The volume of the right circular cone whose area of the base is 156 cm^2 and the vertical height is 8 cm , is (Ans: 416 cm^3)
2. Three cubes of each side 5 cm are joined end to end. Find the surface area of the resulting solid. (Ans: 350 cm^2)
3. The curved surface area of a right circular cone is 12320 cm^2 . If the radius of its base is 56 cm , then find its height? (Ans: 42 cm)
4. A solid in the form of a cylinder with hemispherical end. The total height of the solids is 20 cm and the diameter of the cylinder is 7 cm . Find the total volume of the solid? ($\pi = \frac{22}{7}$) (Ans: 680.17 cm^3)
5. The largest possible sphere is carved out of a wooden solid cube of side 7 cm . Find the volume of the wood left. ($\pi = \frac{22}{7}$) (Ans: 163.33 cm^3)
6. Water in a canal, 6 m wide and 1.5 m deep, is flowing with a speed of 10 km/hour . How much area will it irrigate in 30 minutes, if 8 cm standing water is needed (Ans: 562500 m^2)
7. The $\frac{3}{4}$ part of a conical vessel of internal radius 5 cm and height 24 cm is full of water. The water is emptied into a cylindrical vessel with internal radius 10 cm . Find the height of water in cylindrical vessel. (Ans: 1.5 cm)
8. Two cones with same base diameter 16 cm and height 15 cm are joined together along their bases. Find the surface area of the shape so formed. (Ans: 855 cm^2)
9. How many shots each having diameter 3 cm can be made from a cuboidal lead solid of dimensions $9 \text{ cm} \times 11 \text{ cm} \times 12 \text{ cm}$? (Ans: 84)
10. A right circular cone of radius 3 cm had a curved surface area 47.1 cm^2 . Find the volume of the cone. ($\pi = 3.14$) (Ans: 37.68 cm^3)

11. 500 persons are taking a dip into a cuboidal pond which is 80m long and 50m broad. What is the rise of water level in the pond, if the average displacement of the water by a person is 0.04m^3 (Ans: 0.5cm)
12. A heap of rice in the form of a cone of diameter 9m and height 3.5m. Find the volume of rice. How much canvas cloth is required to cover the heap? (Ans: $74.25\text{m}^3, 80.61\text{m}^2$)
13. A vessel is in the form of a hemisphere bowl mounted by a hollow cylinder. The diameter of the hemisphere is 16cm and the total height of the vessel is 15cm. Find the capacity of the vessel. ($\pi = \frac{22}{7}$) (Ans: 2480.7619cm^3)

Level 2:

14. A well with 10m inside diameter is dug 14m deep. Earth taken out of it spread all around to a width of 5m to form an embankment. Find the height of embankment (Ans: 4.66m)
15. The radius of a solid iron sphere is 8cm. Eight rings of iron plates of external radius $6\frac{2}{3}$ cm and thickness 3cm are made by melting this sphere. Find the internal diameter of each ring. (Ans: 4cm)
16. A well whose diameter is 7m, has been dug 22.5m deep and the earth dugout is used to form an embankment around it. If the height of the embankment is 1.5m, Find the width of the embankment. (Ans: 10.5m)
17. A solid toy is in the form of a hemisphere surmounted by a right circular cone. The height of cone is 4cm and the diameter of the base is 8cm. Determine the volume of the toy? If a cube circumscribes the toy, then find the difference of the volumes of cube and the toy. Also find the total surface area of the toy? (Ans: $310.86\text{cm}^3, 171.68\text{cm}^2$)
