

Board – ICSE

Class – 9th

Topic – Surface area and Volume

1. A metal cube of edge 12cm is melted and formed into three smaller cubes. If the edges of two smaller cubes are 6cm and 8cm, find the edge of third smaller cube. [8 cm]
2. The dimensions of a metallic cuboid are 100cm × 80cm × 64cm. It is melted and recast into a cube. Find
 - (i) the edge of the cube [80 cm]
 - (ii) the surface area of the cube. [34000cm²]
3. The square on the diagonal of cube has an area of 1875 cm², Calculate
 - (i) the side of the cube [25 cm]
 - (ii) the total surface area of the cube. [3750cm²]
4. Four identical cubes are joined end to end to form a cuboid. If the total surface area of the resulting cuboid is 648 cm². Find the length of edge of each cube. Also find the ratio between the surface area of resulting cuboid and the surface area of a cube. [6 cm]
5. A rectangular container has base of length 12cm and width 9cm. A cube of edge 6cm is placed in the container and then sufficient water is filled into it, so that the cube is just submerged. Find the fall in level of water in the container, when the cube is removed. [2 cm]
6. A rectangular container whose base is a square of side 12cm contains sufficient water to submerge a rectangular solid 8cm × 6cm × 3cm. Find the rise in level of water in the container when the solid is in it. [1 cm]
7. A field is 120 m long and 50m broad. A tank 24m long, 10m broad and 6m deep is dug anywhere in the field and the earth taken of the taken is evenly spread over the remaining part of the field. Find the rise level of the field. [25 cm]

8. A swimming pool is 40m long and 15m wide. Its shallow and deep ends are 1.5 m and 3m deep respectively if the bottom of the pool slopes uniformly if the bottom of the pool slopes uniformly, finds the amount of water in liters required to fill the pool. [1350000 liters]
9. A square brass plate of side x cm is 1mm thick and weighs 5.44 kg. If 1 cm^3 of brass weighs 8.5g, find the value of x . [80 cm]
10. The area of cross-section of a rectangular pipe is 5.4 cm^2 and water is pumped out of it at the rate of 27 kmph. Find, in litres, the volume of water which flows out the pipe in 1 minute. [243 liters]
11. The cross-section of a tunnel, perpendicular to its length is a trapezium ABCD in which $AB = 8\text{m}$, $DC = 6\text{m}$ and $AL = BM$. The height of the tunnel is 2.4m and its length is 40m.
- Find:
- (i) The cost of paving the floor of the tunnel at 16 per m^2 . [Rs. 5120]
- (ii) The cost of painting the internal surface of the tunnel, excluding the floor at the rate of Rs 5 per m^2 . [Rs 2160]
12. A stream, which flows at a uniform rate of 4km/hr, is 10 meters wide and 1.2 m deep at a certain point. If its cross-section is rectangular in shape find, in liters, the volume of water that flows in a minute. [800000]
13. If 100.8 cubic meters of sand be thrown into a rectangular tank 14m long and 5m wide; find the rise in the level of the water. [1.44 m]
14. A rectangular card-board sheet has length 32cm and breadth 26cm Squares of each side 3cm are cut from the corners of the sheet and the sides are folded to make a rectangular container. Find the capacity of the container formed. [1560 cm^3]