CBSE Class 9 Mathematics/Surface Areas and Volumes – Chapter 3

Important Questions for Class 9 Mathematics/Model Questions

Answer the following:

1. The total surface area of a cube is 1014cm^2. Find the length of its edge?

Solution:

Total Surface Area of a cube = 1014 cm^2

6 × $Side^2$ = 1014

$Side^2$ = $\frac{1014}{6}$ = 169

Side = $\sqrt{169}$ = 13 cm

So the length of its edge is 13 cm.

2. The length, breadth and height of a room are 7m, 6m and 5m respectively. Find the cost of white washing the walls of the room and the ceiling at the rate of 12.50 rupees per m^2?

Solution:

Required Surface Area = 2h (l + b) + lb = $2 \times 5 \times 13 + (7 \times 6)$

$= 130 + 42$ = 172m^2

Cost of whitewashing = 172 ×12.50 = 2150 rupees

3. The floor of a rectangular hall has a perimeter 25m. If the cost of painting the four walls at the rate of 10 rupees per $m^2$is 6250 rupees, find the height of the hall?

Solution:

Area of the four walls = Lateral Surface Area

Area of the wall = $\frac{6250}{10}$ = 625m^2

2(l + b) h = 625

25h = 625 (since perimeter =2(l + b) = 25m)

h = $\frac{625}{25}$ = 25m

4. Two cubes of edge 4cm are joined to form a cuboid. Find the total surface area of the cuboid?

Solution:

Length of the resulting cuboid = 4 + 4 = 8cm

Breadth = 4 cm

Height = 4cm

Total Surface Area of the cuboid = 2(lb + bh + lh)

= 2($8 \times 4 + 4 \times 4 + 8 \times 4$)

= 2(32 + 16 + 32) = 160cm^2

5. If the volume of a cube is 4913cm^3, find the length of the edge of the cube?

Solution:

Volume of cube = 4913cm^3

$(side)^3$ = 4913

Side = $\sqrt[3]{4913}$ = 17 cm

6. The curved surface area of a right circular cylinder of height 28cm is 704cm^2. Find the diameter of the base of the cylinder?

Solution:

Given $2\pi rh$= 704cm^2

$2 \times \frac{22}{7} \times r \times 28$= 704

176r = 704

r = $\frac{704}{176}$ = 4cm

Diameter = 8cm

7. In a hot water heating system, there is a cylindrical pipe of length 14 cm and diameter 4cm. Find the total radiating surface in the system?

Solution:

Total radiating surface = CSA = $2\pi rh = 2 \times \frac{22}{7} \times 2 \times 14 = 176cm^2$.