

13. Surface Areas and Volumes (Assignment)

Additional –Questions for Assignment

Q1. A cube and cuboids have same volume. The dimensions of the cuboids are in the ratio 1 : 2: 4. if the difference between the cost of polishing the cube and cuboids at the rate of Rs. 5 per m^2 is 80, find their volumes.

Ans: 64 m^3

Q2. The sum of length, breadth and depth of a cuboids is 19 cm and the length of the diagonal is 11 cm. Find the surface area of the cuboids.

Ans: 240 cm^2

Q3. The ratio of the curved surface area to the total surface area of a right circular cylinder is 1: 3. Find the volume of the cylinder if its total surface area is 1848 cm^2 .

Ans: 4312 cm^3

Q4. The cost of papering four walls of a room at Rs. 1.50 per square meter is Rs. 337.50. The height of the room is 5 m. Find the length and breadth of the room if they are in the ratio 4 : 1.

Ans: $l = 18 \text{ m}$, $b = 4.5$

Q5. Circumference of the base of a cylinder open at top is 132 cm. The sum of radius and height of the cylinder 41 cm. Find the cost of polishing the outer surface of cylinder at rate of Rs. 10 per square metre.

Ans: Rs. 4.026

Q6. The total surface area of a right circular cylinder is 6512 cm^2 , and the circumference of its base is 88 cm, find the volume of the cylinder.

Ans: 36960 cm^3

Q7. The areas of three adjacent faces of cuboids are 108 cm^2 , 72 cm^2 and 96 cm^2 respectively. Find the volume of the cuboids. Also find the dimensions of the cuboids.

Ans: Volume = 864 cm^3 , dimensions $12 \text{ cm} \times 9 \text{ cm} \times 8 \text{ cm}$

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Q8. A right circular cone is 5.4 cm high and radius of its base is 2 cm. It is melted and recast into another right circular cone with radius of base as 1.5 cm. Find the height of the new cone formed.

Ans: 9.6 cm

Q9. The radius and height of a right circular cone are in the ratio 3 : 4. If its volume is 301.44 cm^3 , find its radius and slant height. [take $\pi = 3.14$]

Ans: Radius : 6 cm, height = 10 cm

Q10. Four cubes each of side 5 cm are joined end to end. Find surface area of resultant cuboids.

Ans: 450 cm^2

Q11. A hemispherical dome of a building needs to be painted. If the circumference of the base of dome is 17.6 m, find the cost of painting it, at the rate of 5 per 100 cm^2 .

Ans: Rs. 24640

Q12. The difference between outside and inside surfaces of cylindrical metallic pipe 14 cm long is 44 cm^2 . If a pipe is made of 99 cm^3 of metal, find the outer and inner radii of the pipe.

Ans: $R = 2.5 \text{ cm}$, $r = 2 \text{ cm}$

Q13. If in a sphere, volume and surface area are numerically equal, find the radius.

Ans: $r = 3 \text{ units}$

Q14. Rain water which falls on a flat rectangular surface of length 6 m and breadth 4 m is transferred into a cylindrical vessel of internal radius 20 cm. What will be height of water in the cylindrical vessel if the rainfall is 1 cm ? Give answer to the nearest whole number. [use $\pi = 3.14$]

Ans: 192 cm