

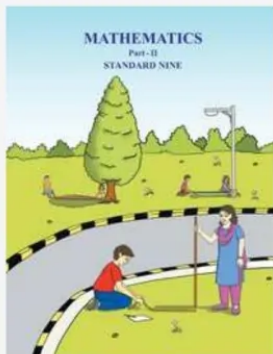
Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 9.1- Surface Area and Volume

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 9.1
Surface Area and Volume

Maharashtra Board Solutions→



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Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 9.1- Surface Area and Volume

Class 9: Maths Chapter 9.1 solutions. Complete Class 9 Maths Chapter 9.1 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 9.1- Surface Area and Volume

Maharashtra Board 9th Maths Chapter 9.1, Class 9 Maths Chapter 9.1 solutions

Question 1.

Length, breadth and height of a cuboid shape box of medicine is 20 cm, 12 cm and 10 cm respectively. Find the surface area of vertical faces and total surface area of this box.

Given: For cuboid shape box of medicine,

length (l) = 20 cm, breadth (b) = 12 cm and height (h) = 10 cm.

To find: Surface area of vertical faces and total surface area of the box

Solution:

i. Surface area of vertical faces of the box

$$= 2(l + b) \times h$$

$$= 2(20 + 12) \times 10$$

$$= 2 \times 32 \times 10$$

$$= 640 \text{ sq.cm.}$$

ii. Total surface area of the box

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$$= 2 (lb + bh + lh)$$

$$= 2(20 \times 12 + 12 \times 10 + 20 \times 10)$$

$$= 2(240 + 120 + 200)$$

$$= 2 \times 560$$

$$= 1120 \text{ sq.cm.}$$

$\therefore$ The surface area of vertical faces and total surface area of the box are 640 sq.cm, and 1120 sq.cm, respectively.

Question 2.

Total surface area of a box of cuboid shape is 500 sq.unit. Its breadth and height is 6 unit and 5 unit respectively. What is the length of that box?

Given: For cuboid shape box,

breadth (b) = 6 unit, height (h) = 5 unit Total surface area = 500 sq. unit.

To find: Length of the box (l)

Solution:

Total surface area of the box = $2 (lb + bh + lh)$

$$\therefore 500 = 2 (6l + 6 \times 5 + 5l)$$

$$\therefore 500 = 2 (11l + 30)$$

$$\therefore 250 = 11l + 30$$

$$\therefore 250 - 30 = 11l$$

$$\therefore 220 = 11l$$

$$\therefore 220 = 11l$$

$$\therefore 22011 = l$$

$$\therefore l = 20 \text{ units}$$

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∴ The length of the box is 20 units.

Question 3.

Side of a cube is 4.5 cm. Find the surface area of all vertical faces and total surface area of the cube.

Given: Side of cube (l) = 4.5 cm

To find: Surface area of all vertical faces and the total surface area of the cube

Solution:

i. Area of vertical faces of cube = $4l^2$

$$= 4 (4.5)^2 = 4 \times 20.25 = 81 \text{ sq.cm.}$$

ii. Total surface area of the cube = $6l^2$

$$= 6 (4.5)^2$$

$$= 6 \times 20.25$$

$$= 121.5 \text{ sq.cm.}$$

∴ The surface area of all vertical faces and the total surface area of the cube are 81 sq.cm, and 121.5 sq.cm, respectively.

Question 4.

Total surface area of a cube is 5400 sq. cm. Find the surface area of all vertical faces of the cube.

Given: Total surface area of cube = 5400 sq.cm.

To find: Surface area of all vertical faces of the cube

Solution:

i. Total surface area of cube = $6l^2$

$$\therefore 5400 = 6l^2$$

$$\therefore 5400/6 = l^2$$

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$$\therefore l^2 = 900$$

ii. Area of vertical faces of cube = $4l^2$

$$= 4 \times 900 = 3600 \text{ sq.cm.}$$

$\therefore$ The surface area of all vertical faces of the cube is 3600 sq.cm.

Question 5.

Volume of a cuboid is 34.50 cubic metre. Breadth and height of the cuboid is 1.5 m and 1.15 m respectively. Find its length.

Given: Breadth (b) = 1.5 m, height (h) = 1.15 m

Volume of cuboid = 34.50 cubic metre

To find: Length of the cuboid (l)

Solution:

Volume of cuboid = $l \times b \times h$

$$\therefore 34.50 = l \times b \times h$$

$$\therefore 34.50 = l \times 1.5 \times 1.15$$

$$\begin{aligned}\therefore l &= \frac{34.50}{1.5 \times 1.15} \\ &= \frac{34500}{15 \times 115} \\ &= \frac{300}{15} \\ &= 20\end{aligned}$$

$$= 20$$

$\therefore$ The length of the cuboid is 20 m.

Question 6.

What will be the volume of a cube having length of edge 7.5 cm ?

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Given: Length of edge of cube (l) = 7.5 cm

To find: Volume of a cube

Solution:

Volume of a cube = l^3

$$= (7.5)^3$$

$$= 421.875 \approx 421.88 \text{ cubic cm}$$

$\therefore$ The volume of the cube is 421.88 cubic cm.

Question 7.

Radius of base of a cylinder is 20 cm and its height is 13 cm, find its curved surface area and total surface area, ($\pi = 3.14$)

Given: Radius (r) = 20 cm, height (h) = 13 cm

To find: Curved surface area and

the total surface area of the cylinder

Solution:

i. Curved surface area of cylinder = $2\pi rh$

$$= 2 \times 3.14 \times 20 \times 13$$

$$= 1632.8 \text{ sq.cm}$$

ii. Total surface area of cylinder = $2\pi r(r + h)$

$$= 2 \times 3.14 \times 20(20 + 13)$$

$$= 2 \times 3.14 \times 20 \times 33 = 4144.8 \text{ sq.cm}$$

$\therefore$ The curved surface area and the total surface area of the cylinder are 1632.8 sq.cm and 4144.8 sq.cm respectively.

Question 8.

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Curved surface area of a cylinder is 1980 cm^2 and radius of its base is 15 cm. Find the height of the cylinder. ($\pi = 227$)

Given: Curved surface area of cylinder = 1980 sq.cm. , radius (r) = 15 cm

To find: Height of the cylinder (h)

Solution:

Curved surface area of cylinder = $2\pi rh$

$$\therefore 1980 = 2 \times 227 \times 15 \times h$$

$$\therefore h = 1980 \div 72 \times 22 \times 15$$

$$\therefore h = 21 \text{ cm}$$

$\therefore$ The height of the cylinder is 21 cm.



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Class 9 Maths

Part 2

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- Chapter 1.2- Basic Concepts in Geometry
- Chapter 1.3- Basic Concepts in Geometry
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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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FAQs

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As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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