

## 8th Maths Mensuration Test paper

Q. 1.) The areas of three adjacent faces of a cuboid are  $x$ ,  $y$  and  $z$  sq units. If its volume is  $V$  cubic units. then:

Sol:-

$$x = lb$$

$$y = bh$$

$$z = hl$$

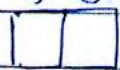
$$xyz = (lbh)^2$$

$$\sqrt{xyz} = V$$

$$xyz = V^2$$

Q. 2.) Two cubes each of edge 5 cm are joined face to face. The surface area of the cuboid thus formed is equal to:

Sol:-



$$l = 10$$

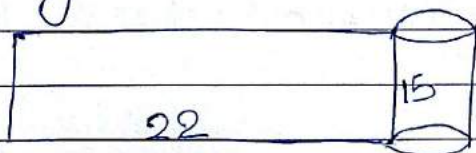
$$b = 5$$

$$h = 5$$

$$\begin{aligned} SA &= 2(lb + bh + lh) \\ &= 2(10 \times 5 + 5 \times 5 + 10 \times 5) \\ &= 2(50 + 25 + 50) \\ &= 2(125) \\ &= 250 \text{ cm}^2 \end{aligned}$$

Q.3.) A rectangular sheet of paper,  $22\text{cm} \times 15\text{cm}$  is rolled along its length to form a hollow cylinder. The radius of the cylinder is:

Sol:-



$$22 = 2\pi r$$

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

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

$$\boxed{3.5 = r}$$

Q.4.) In a cylinder, radius is doubled and height is halved. Its C.S.A will be:-

Sol:-

C.S.A of cylinder =  $2\pi rh$

Now radius is doubled and height is half

$$\text{CSA of New cylinder} = 2 \times \pi (2r) \times \frac{h}{2}$$

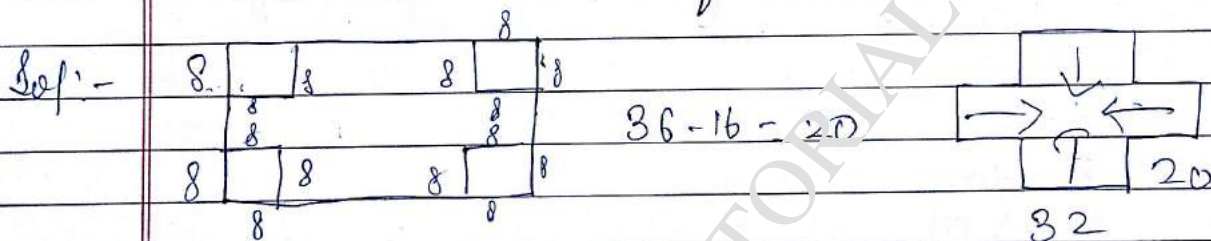
$$= 2\pi rh = \text{org. CSA of cylin.}$$

both have same CSA

Q.5.) The length of the longest pole that can be put in a room of dimension  $10\text{m} \times 10\text{m} \times 5\text{m}$  is

Sol:- Diagonal =  $\sqrt{l^2 + b^2 + h^2} = \sqrt{10^2 + 10^2 + 5^2}$   
 $= \sqrt{225}$   
 $= 15 \text{ cm}$

Q.6.) A metallic sheet is of the rectangular shape with dimensions  $48 \text{ cm} \times 36 \text{ cm}$ . From each one of its corners a square of side  $8 \text{ cm}$  is cut off. An open box is made of the remaining sheet. Find the volume of the box.



$$l = 32 \text{ cm}$$

$$b = 20 \text{ cm}$$

$$h = 8 \text{ cm}$$

$$V = (l \times b \times h)$$

$$= (32 \times 20 \times 8) \text{ cm}^3$$

$$= 5120 \text{ cm}^3$$

7.) How many litres of water flow out through a pipe having an area of cross-section of  $5 \text{ cm}^2$  in one minute if the speed of water in pipe is  $30 \text{ cm/sec}$

Sol:- Cross section area =  $5 \text{ cm}^2$

Speed of flowing water =  $30 \text{ m/sec}$   
 $\therefore l = 30 \text{ cm}$

$$\begin{aligned}\text{Water flowing in 1 min} &= (5 \times 30) \times 60 \\ &= 9000 \text{ cm}^3 \\ &= 9 \text{ lit (1000 cm}^3) \\ &= 1 \text{ lit}\end{aligned}$$

Q. 8.) The length, breadth and height of a room are 5m, 4m, and 3m respectively. Find the cost of painting the walls of the room and ceiling at the rate of Rs 50 per  $\text{m}^2$ .

Sol. -

$$\begin{aligned}l &= 5\text{m} \\ b &= 4\text{m} \\ h &= 3\text{m}\end{aligned}$$

$$\begin{aligned}\text{Area of 4 wall and ceiling} &= 2(l+b) \times h + lb \\ &= 2(5+4) \times 3 + 5 \times 4 \\ &= 74 \text{ m}^2\end{aligned}$$

$$\text{Cost of painting at the rate of Rs. 50} = \text{Rs. } 50 \times 74 = \text{Rs. } 3700$$

Q. 9.) A river 3m deep and 40m wide is flowing at the rate of 2km per hour. How much water will fall into the sea in a minute?

Sol:- Speed of flowing water = 2 km/h

$$\frac{2 \times 1000}{60} = \frac{100}{3} \text{ m/min}$$

$$l = \frac{100}{3} = b = 40 \text{ m}, h = 3 \text{ m}$$

V. of water flow in 1 min

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

$$= \frac{100}{3} \times 40 \times 3$$

$$= 4000 \text{ m}^3$$

Q.10.) The diameter of a cylindrical roller, 120 cm long is 84 cm. It takes 500 complete revolutions to level a playground. Find the cost of leveling it at Rs 7.50 per sq.m.

Sol:- Dist. covered in 1 revolution

CS.A of cylinder

$$= 2\pi rh$$

$$= 2 \times \frac{22}{7} \times 60 \times 84 = 31680 \text{ cm}^2$$

$$\text{Area swept in 500 revolution} = 31680 \times 500 / 10000$$

$$= 1584 \text{ m}^2$$

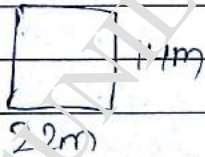
$$\text{Cost of leveling} = 7.50 \times 1584 = \text{Rs.} 11880$$

11.) A well is dug 20 m deep and it has diameter of 7 m. The earth which is so dug out is spread on a rectangular plot 22 m long and 14 m broad. What is the height of the platform so formed?

Sol.: V. of earth dug out =  $\pi r^2 h$

$$= \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 20$$

$$= 770 \text{ cm}^3$$



Area of ground

$$= 22 \times 14$$

$$= 308 \text{ m}^2$$

$$h = \frac{V}{\text{Area}}$$

$$= \frac{770}{308}$$

$$= 2.5$$