



Surface Areas and Volumes Ex.16.2 Q3

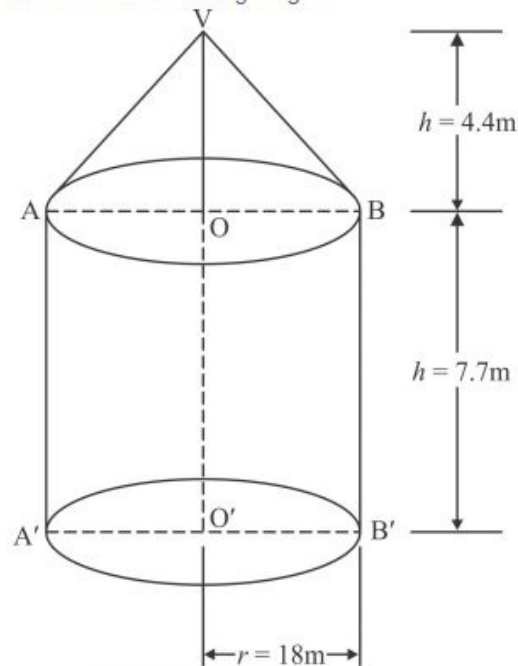
**Answer :**

Given:

Height of the cylinder  $h_1 = 77 \text{ dm} = 7.7 \text{ m}$ , diameter of cylinder  $d = 36 \text{ m}$

Height of the cone  $h_2 = 44 \text{ dm} = 4.4 \text{ m}$

We have the following diagram



$$\text{Radius } r = \frac{d}{2} = \frac{36}{2} = 18 \text{ m}$$

The curved area  $S_1$  of cylinder is given by

$$\begin{aligned} S_1 &= 2\pi rh \\ &= 2 \times \frac{22}{7} \times 18 \times 7.7 \\ &= 871.2 \text{ m}^2 \end{aligned}$$

The slant height of the cone is

$$\begin{aligned} l &= \sqrt{r^2 + h^2} \\ &= \sqrt{18^2 + 4.4^2} \\ &= 18.53 \text{ m} \end{aligned}$$

The curved area of the cone is given by

$$\begin{aligned} S_2 &= \pi rl \\ &= \frac{22}{7} \times 18 \times 18.53 \\ &= 1048.26 \text{ m}^2 \end{aligned}$$

The total area of the canvas required is given as

$$\begin{aligned} S &= S_1 + S_2 \\ &= 871.2 + 1048.26 \\ &= 1919.46 \text{ m}^2 \end{aligned}$$

Therefore the cost of the canvas at the rate of Rs 3.5 per square meter is given by

$$= 1919.46 \times 3.5 = \text{Rs. } 6718.11$$

Hence the cost of the canvas is Rs 6718.11

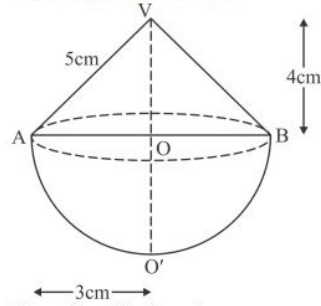
Surface Areas and Volumes Ex.16.2 Q4

**Answer :**

Given that, a toy is in the form of a cone surmounted on the hemisphere.

Diameter of the base  $d = 6$  cm and the height of the cone  $h = 4$  cm, then we have to find the surface area of the toy.

We have the following figure



The radius of the base is

$$\begin{aligned} r &= \frac{d}{2} \\ &= \frac{6}{2} = 3 \text{ cm} \end{aligned}$$

From the above figure, the slant height of the cone is

$$\begin{aligned} l &= \sqrt{r^2 + h^2} \\ &= \sqrt{3^2 + 4^2} \\ &= 5 \text{ cm} \end{aligned}$$

We know that when the surface area of the cone is  $S_1$ , then

$$\begin{aligned} S_1 &= \pi r l \\ &= 3.14 \times 3 \times 5 \\ &= 47.1 \text{ cm}^2 \end{aligned}$$

The surface area of the hemisphere is

$$\begin{aligned} S_2 &= 2\pi r^2 \\ &= 2 \times 3.14 \times 3^2 \\ &= 56.52 \text{ cm}^2 \end{aligned}$$

Therefore the surface area of the toy is

$$\begin{aligned} S &= S_1 + S_2 \\ &= 47.1 + 56.52 \\ &= 103.62 \text{ cm}^2 \end{aligned}$$

Hence,  $S = 103.62 \text{ cm}^2$

\*\*\*\*\* END \*\*\*\*\*