Surface Areas and Volumes Ex.16.2 Q3

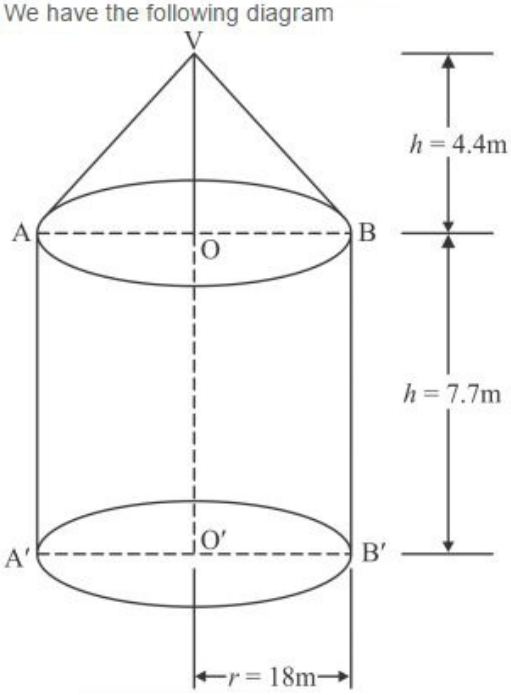
Answer :

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



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

The curved area S_1 of cylinder is given by

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

The slant height of the cone is

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

The curved area of the cone is given by

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

The total area of the canvas required is given as

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

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

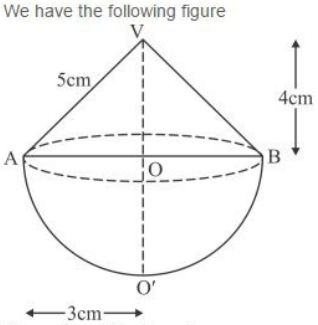
Surface Areas and Volumes Ex.16.2 Q4

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

$$r = \frac{d}{2}$$

$$= \frac{6}{2} = 3 \text{ cm}$$

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

$$l = \sqrt{r^2 + h^2}$$

$$= \sqrt{3^2 + 4^2}$$

$$= 5 \text{ cm}$$

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

$$S_1 = \pi r l$$

$$= 3.14 \times 3 \times 5$$

$$= 47.1 \text{ cm}^2$$

The surface area of the hemisphere is

$$S_2 = 2\pi r^2$$

$$= 2 \times 3.14 \times 3^2$$

$$= 56.52 \text{ cm}^2$$

Therefore the surface area of the toy is

$$S = S_1 + S_2$$

$$= 47.1 + 56.52$$

$$= 103.62 \text{ cm}^2$$

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

********** END **********