



### Surface Area and volume of A Right Circular cone Ex 20.1 Q20

**Answer :**

The total amount of canvas required would be equal to the curved surface area of the cone.

The formula of the curved surface area of a cone with base radius ' $r$ ' and slant height ' $l$ ' is given as

$$\text{Curved Surface Area} = \pi r l$$

It is given that the circumference of the base is 44 m.

So,

$$2\pi r = 44$$

$$r = \frac{(44)(7)}{(2)(22)}$$

$$r = 7 \text{ m}$$

It is given that the vertical height of the cone is  $h = 10$  m.

To find the slant height ' $l$ ' to be used in the formula for Curved Surface Area we use the following relation

Slant height,

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

$$= \sqrt{7^2 + 10^2}$$

$$= \sqrt{49 + 100}$$

$$= \sqrt{149}$$

$$l = \sqrt{149} \text{ m}$$

Now, substituting the values of  $r = 7$  m and slant height  $l = \sqrt{149}$  m and using  $\pi = \frac{22}{7}$  in the formula

of C.S.A,

$$\text{We get Curved Surface Area} = \frac{(22)(7)(\sqrt{149})}{7}$$

$$= (22)(\sqrt{149})$$

Hence the curved surface area of the given cone is  $(22)(\sqrt{149}) \text{ m}^2$

Now, the width of the canvas is 5 m.

Area of the canvas required = (Width of the canvas) (Length of the canvas)

Therefore,

$$\text{Length of the canvas} = \frac{\text{Area of the canvas}}{\text{Width of the canvas}}$$

$$= \frac{(22)(\sqrt{149})}{5}$$

$$= 134.27$$

Hence the length of canvas required is  $\boxed{134.27 \text{ m}}$

### Surface Area and volume of A Right Circular cone Ex 20.1 Q21

**Answer :**

The total amount of canvas required would be equal to the curved surface area of the cone.

The formula of the curved surface area of a cone with base radius ' $r$ ' and slant height ' $l$ ' is given as

$$\text{Curved Surface Area} = \pi r l$$

It is given that the base radius  $r = 6$  m and vertical height  $h = 8$  m.

To find the slant height ' $l$ ' to be used in the formula for Curved Surface Area we use the following relation

Slant height,

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

$$= \sqrt{6^2 + 8^2}$$

$$= \sqrt{36 + 64}$$

$$= \sqrt{100}$$

$$l = 10 \text{ m}$$

Now, substituting the values of  $r = 6$  m and slant height  $l = 10$  m and using  $\pi = 3.14$  in the formula of C.S.A,

$$\text{We get Curved Surface Area} = (3.14)(6)(10)$$

$$= 188.4$$

Hence the curved surface area of the cone is  $188.4 \text{ m}^2$

Now, the width of the canvas is 3 m.

Area of the canvas required = (Width of the canvas) (Length of the canvas)

Therefore,

$$\text{Length of the canvas} = \frac{\text{Area of the canvas}}{\text{Width of the canvas}}$$

$$= \frac{188.4}{3}$$

$$= 62.8$$

Length of canvas is 62.8 m. But we need to add another 20 cm of length for wastage.

20 cm = 0.2 m.

Hence the total amount of canvas length required is 63 m

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