



Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q21

Answer :

We have, dimensions of the plot that is dug,

$$\text{Length}(l) = 50 \text{ m}$$

$$\text{Breadth}(b) = 40 \text{ m}$$

$$\text{Depth}(h) = 7 \text{ m}$$

$$\text{Length of the field } (L) = 200 \text{ m}$$

$$\text{Breadth of the field } (B) = 150 \text{ m}$$

We need to find the level of field raised

Here, the volume of earth taken out,

$$\begin{aligned} V &= lbh \\ &= (50 \times 40 \times 7) \text{ m}^3 \end{aligned}$$

So the rise in the level of the field

$$\begin{aligned} &= \frac{V}{L \times B} \\ &= \frac{50 \times 40 \times 7}{200 \times 150} \\ &= \frac{7}{5 \times 3} \\ &= \frac{7}{15} \\ &= 0.47 \text{ m} \end{aligned}$$

The level of the field is raised by 0.47 m.

Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q22

Answer :

We have,

Length of the field (L) = 18 m

Width of the field (B) = 15 m

Length of the pit (l) = 7.5 m

Breadth of the pit (b) = 6 m

Depth of the pit (h) = 0.8 m

We have to find the level of field raised

Volume of the earth dug out

$$\begin{aligned} V &= lbh \\ &= (7.5 \times 6 \times 0.8) \text{ m}^3 \end{aligned}$$

The area on which the earth has to be spread,

$$\begin{aligned} A &= (L \times B) - lb \\ &= 18 \times 15 - 7.5 \times 6 \\ &= 270 - 45 \\ &= 225 \text{ m}^2 \end{aligned}$$

The rise in the level of the field

$$\begin{aligned} &= \frac{V}{A} \\ &= \frac{7.5 \times 6 \times 0.8}{225} \\ &= \frac{45 \times 0.8}{225} \\ &= \frac{0.8}{5} \\ &= 0.16 \text{ m} \\ &= 16 \text{ cm} \end{aligned}$$

The level of the field has been raised to 16 cm.

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