Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q12

Answer :

We know,

Length of the iron tank $(l) = 12\,\text{m}$

Width of the iron tank $(b) = 9\,\text{m}$

Depth of the iron tank $(h) = 4\,\text{m}$

Width of the iron sheet $(w) = 2\,\text{m}$

Rate of the iron sheet $(r) = \text{Rs.}5$ per metre

We need to find the cost of iron sheet used

Total surface area of the iron tank,

$$A = 2(lb + bh + hl)$$

$$= 2(12 \times 9 + 9 \times 4 + 4 \times 12)$$

$$= 2(108 + 36 + 48)$$

$$= 2(192)$$

$$= 384\,\text{m}^2$$

Length of the iron sheet required,

$$L = \frac{A}{w}$$

$$= \frac{384}{2}$$

$$= 192\,\text{m}$$

Cost of the required iron sheet,

$$C = L \times r$$
$$= 192 \times 5$$
$$= \text{Rs.}960$$

The total cost of iron sheet used is $\boxed{\text{Rs.}960}$.

Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q13

Answer :

The shelter is a box-like structure and hence cubical.

We have,

Length of the cuboid $(l) = 4\,\text{m}$

Breadth of the cuboid $(b) = 3\,\text{m}$

Height of the cuboid $(h) = 2.5\,\text{m}$

The total surface area of the cuboid,

$$A_1 = 2(lb + bh + hl)$$

The area of the base,

$$A_2 = (l \times b)$$

The quantity of tarpaulin required,

$$= A_1 - A_2$$
$$= 2(lb + bh + hl) - (lb)$$
$$= lb + 2h(b + l)$$
$$= 4 \times 3 + 2(2.5)(4 + 3)$$
$$= 12 + 35$$
$$= 47\,\text{m}^2$$

So the quantity of tarpaulin required is $\boxed{47\,\text{m}^2}$.

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