

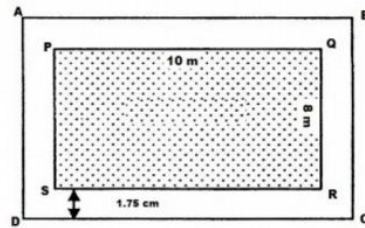


Mensuration I Ex 20.2 Q10

Answer :

We have,

Length of the poster = 10 cm and breadth of the poster = 8 cm



\therefore Area of the poster = Length \times Breadth = 10 cm \times 8 cm = 80 cm²

From the figure, it can be observed that,

Length of the cardboard when the margin is included = 10 cm + 1.75 cm + 1.75 cm = 13.5 cm

Breadth of the cardboard when the margin is included = 8 cm + 1.75 cm + 1.75 cm = 11.5 cm

\therefore Area of the cardboard = Length \times Breadth = 13.5 cm \times 11.5 cm = 155.25 cm²

Hence,

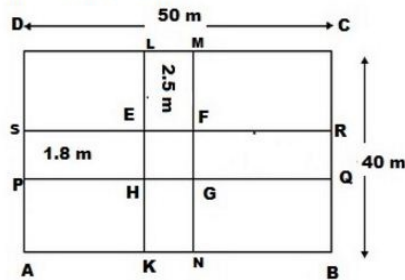
$$\begin{aligned} \text{(i) Area of the margin} &= \text{Area of cardboard including the margin} - \text{Area of the poster} \\ &= 155.25 \text{ cm}^2 - 80 \text{ cm}^2 \\ &= 75.25 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{(ii) Cost of the cardboard} &= \text{Area of the cardboard} \times \text{Rate of the cardboard Rs. 0.60 per cm}^2 \\ &= \text{Rs. } (155.25 \times 0.60) \\ &= \text{Rs. 93.15} \end{aligned}$$

Mensuration I Ex 20.2 Q11

Answer :

Let $ABCD$ be the rectangular field and $KLMN$ and $PQRS$ the two rectangular roads with width 1.8 m and 2.5 m, respectively.



Length of the rectangular field $CD = 50$ m and breadth of the rectangular field $BC = 40$ m

\therefore Area of the rectangular field $ABCD = 50 \text{ m} \times 40 \text{ m} = 2000 \text{ m}^2$

Area of the road $KLMN = 40 \text{ m} \times 2.5 \text{ m} = 100 \text{ m}^2$

Area of the road $PQRS = 50 \text{ m} \times 1.8 \text{ m} = 90 \text{ m}^2$

Clearly area of $EFGH$ is common to the two roads.

Thus, Area of $EFGH = 2.5 \text{ m} \times 1.8 \text{ m} = 4.5 \text{ m}^2$

Hence,

$$\begin{aligned} \text{Area of the roads} &= \text{Area } (KLMN) + \text{Area } (PQRS) - \text{Area } (EFGH) \\ &= (100 \text{ m}^2 + 90 \text{ m}^2) - 4.5 \text{ m}^2 = 185.5 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of the remaining portion of the field} &= \text{Area of the rectangular field } ABCD - \text{Area of the roads} \\ &= (2000 - 185.5) \text{ m}^2 \\ &= 1814.5 \text{ m}^2 \end{aligned}$$

Mensuration I Ex 20.2 Q12

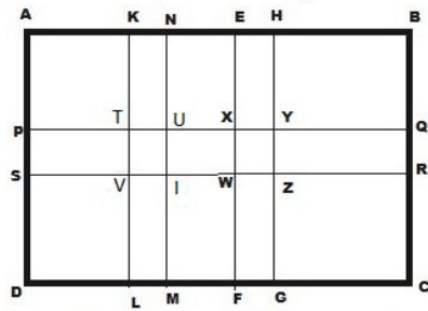
Answer :

Let $ABCD$ be the rectangular field.

Here,

Two roads which are parallel to the breadth of the field $KLMN$ and $EFGH$ with width 2 m each.

One road which is parallel to the length of the field $PQRS$ with width 2 m.



Length of the rectangular field $AB = 94$ m and breadth of the rectangular field $BC = 32$ m

\therefore Area of the rectangular field = Length \times Breadth = $94 \text{ m} \times 32 \text{ m} = 3008 \text{ m}^2$

Area of the road $KLMN = 32 \text{ m} \times 2 \text{ m} = 64 \text{ m}^2$

Area of the road $EFGH = 32 \text{ m} \times 2 \text{ m} = 64 \text{ m}^2$

Area of the road $PQRS = 94 \text{ m} \times 2 \text{ m} = 188 \text{ m}^2$

Clearly area of $TUVI$ and $WXYZ$ is common to these three roads.

Thus,

Area of $TUVI = 2 \text{ m} \times 2 \text{ m} = 4 \text{ m}^2$

Area of $WXYZ = 2 \text{ m} \times 2 \text{ m} = 4 \text{ m}^2$

Hence,

(i) Area of the field covered by the three roads:

= Area ($KLMN$) + Area ($EFGH$) + Area ($PQRS$) - {Area ($TUVI$) + Area ($WXYZ$)}

= $[64 + 64 + 188 - (4 + 4)] \text{ m}^2$

= $316 \text{ m}^2 - 8 \text{ m}^2$

= 308 m^2

(ii) Area of the field not covered by the roads:

= Area of the rectangular field $ABCD$ - Area of the field covered by the three roads

= $3008 \text{ m}^2 - 308 \text{ m}^2$

= 2700 m^2

***** END *****