

④ The sides of a triangular field is 240m, 200m, and 360m. Find the cost of field at the rate of ₹ 3500 per hectare.
= 1 hectare = 10,000 meters

o Using Heron's formula

$$S = \frac{240 + 200 + 360}{2} = \frac{800}{2} = 400$$



$$S = 400 \text{ m}$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{400(400-240)(400-200)(400-360)}$$

$$= \sqrt{400 \times 160 \times 200 \times 40}$$

$$= \sqrt{20 \times 20 \times 20 \times 8 \times 20 \times 10 \times 8 \times 5}$$

$$= \sqrt{20 \times 20 \times 8 \times 5 \times 2}$$

$$= 16,000 \sqrt{2} \text{ m}^2$$

$$= 16,000 \times 1.41 \text{ m}^2$$

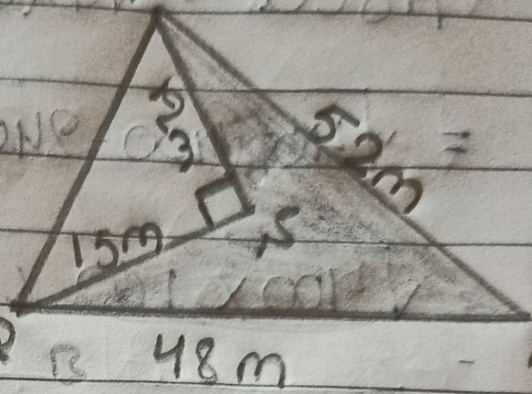
$$= 22,627.2 \text{ m}^2$$

$$\text{cost of field} = \frac{22,627.2 \times 3500}{10000}$$

$$= ₹ 7,919.52$$

- ⑤ Find the area of shaded region in the figure below

$\Rightarrow S = 12 + 15 + 48 + 52$



By Pythagoras theorem

$$PQ^2 = PS^2 + SQ^2$$

$$PQ^2 = (12m)^2 + (15m)^2$$

$$PQ^2 = 144m^2 + 225m^2$$

$$PQ^2 = 369m^2$$

$$PQ = \sqrt{369m^2}$$

$$PQ = 19.2m$$

Area of shaded region = Area of $\triangle PQR$ - Area of $\triangle PQS$

$$= \frac{1}{2} \times QR \times PQ - \frac{1}{2} \times PS \times QS$$

$$= \frac{1}{2} \times 48m \times 19m - \frac{1}{2} \times 12m \times 15m$$



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$$\begin{aligned} &= 24\text{m} \times 19\text{m} - 6\text{m} \times 15\text{m} \\ &= 456\text{m}^2 - 90\text{m}^2 \\ &= 366\text{m}^2 \end{aligned}$$

Area of Shaded region = 366m^2 ,