

Exercise 7A

Question 7:

Let the sides of the triangle be 25x, 17x and 12x.

Then, its perimeter =
$$(25x + 17x + 12z) = 54x$$

$$\Rightarrow 54x = 540$$

$$\Rightarrow x = \frac{540}{54} = 10m.$$

Thus, sides of the triangle are:

$$25x = 25 \times 10 = 250 \text{ m}$$

$$17x = 17 \times 10 = 170 \text{ m}$$

$$12x = 12 \times 10 = 120 \text{ m}$$

Let, a = 250 m, b = 170 m and c = 120 m

Now,
$$S = \frac{1}{2} \left(a + b + c \right)$$

$$= \left(\frac{250 + 170 + 120}{2} \right) m$$

$$= \left(\frac{540}{2} \right) m = 270 \, m$$

$$\therefore \quad \text{area of the triangle} = \sqrt{s(s-a)(s-b)(s-c)} \\ = \sqrt{270(270-250)(270-170)(270-120)} \\ = \sqrt{3 \times 3 \times 3 \times 10 \times 10 \times 2 \times 10 \times 10 \times 5 \times 3} \\ = 3 \times 3 \times 10 \times 10 \times 10 = 9000 \, \text{m}^2$$

 $\,$. Cost of ploughing the field at the rate of Rs. 18.80 per 10 m^2

$$= \frac{18.80}{10} \times 9000 = \text{Rs. } 16920$$

∴ Cost of ploughing the field = Rs. 16920.

Question 8:

One side of a triangular field $\,=\,85$ m Second side of a triangular field $\,=\,154$ m Let the third side of a triangular field be x m

$$\therefore$$
 85 m + 154 m + x m = 324 m

$$\Rightarrow \qquad \qquad x = 324 - 239$$

$$x = 85 \text{ m}$$

the third side = 85 m

Let a = 85 m, b = 154 m and c = 85 m

$$S = \frac{1}{2}(a+b+c)$$
$$= \left(\frac{85+154+85}{2}\right) = \frac{324}{2} = 162$$

area of the triangle =
$$\sqrt{S(S-a)(S-b)(S-c)}$$

$$= \sqrt{162 (162 - 85) (162 - 154) (162 - 85)}$$

$$= \sqrt{162 \times 77 \times 8 \times 77}$$

$$= \sqrt{2 \times 9 \times 9 \times 7 \times 11 \times 2 \times 2 \times 2 \times 7 \times 11}$$

$$= \sqrt{11 \times 11 \times 9 \times 9 \times 7 \times 7 \times 2 \times 2 \times 2 \times 2}$$

$$= 11 \times 9 \times 7 \times 2 \times 2 = 2772 \text{ m}^2$$

∴ area of triangle = 2772 m²

Also, area of triangle = $\frac{1}{2} \times base \times height$

$$2772 = \frac{1}{2} \times 154 \times h = 77h$$

$$h = \frac{2772}{77} = 36 \text{ m}$$

:. the length of the perpendicular from the opposite vertex on the side measuring 154 m = 36 m.

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