

# Mathematics

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(Chapter – 12) (Heron's Formula)(Exemplar Problems)

(Class – IX)

## Exercise 12.3

### Question 2:

The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 13 m, 14 m and 15 m. The advertisements yield and earning of Rs 2000 per m<sup>2</sup> a year. A company hired one of its walls for 6 months. How much rent did it pay?

### Answer 2:

Since, the sides of a triangular walls are  $a = 13$  m,  $b = 14$  m and  $c = 15$  m

∴ Now, semi –perimeter of a triangle side wall,  $s$

$$s = \frac{a + b + c}{2} = \frac{13 + 14 + 15}{2} = \frac{42}{2} = 21\text{m}$$

∴ Area of a triangular side wall

$$\begin{aligned} &= \sqrt{s(s-a)(s-b)(s-c)} \quad [\text{By Heron's formula}] \\ &= \sqrt{21(21-13)(21-14)(21-15)} \\ &= \sqrt{21 \times 8 \times 7 \times 6} \\ &= \sqrt{21 \times 4 \times 2 \times 7 \times 3 \times 2} \\ &= \sqrt{(21)^2 \times (4)^2} = 21 \times 4 = 84\text{m}^2 \end{aligned}$$

Since, the advertisement yield earning per year for 1m<sup>2</sup> = Rs2000

$$\begin{aligned} \therefore \text{Advertisement yield earning per year on } 84 \text{ m}^2 \\ &= 2000 \times 84 = \text{Rs. } 168000 \end{aligned}$$

As the company hired one of its walls for 6 months, therefore company pay the

$$\text{rent} = \frac{1}{2}(168000) = \text{Rs. } 84000$$

Hence, the company paid rent Rs.84000

