

Mathematics

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

(Class – IX)

Exercise 12.2

Write **True** or **False** and justify your answer:

Question 8:

The cost of leveling the ground in the form of a triangle having the sides 51m, 37m and 20m at the rate of Rs 3 per m^2 is Rs 918.

Answer 8:

True

Let sides of triangle be $a = 51m$, $b = 37m$ and $c = 20m$.

Now, semi – perimeter of a triangle,

$$s = \frac{a + b + c}{2} = \frac{51 + 37 + 20}{2} = \frac{108}{2} = 54 m$$

∴ Area of a triangle

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

[By Heron's formula]

$$= \sqrt{54(54 - 51)(54 - 37)(54 - 20)}$$

$$= \sqrt{54 \times 3 \times 17 \times 34}$$

$$= \sqrt{9 \times 3 \times 2 \times 3 \times 17 \times 17 \times 2}$$

$$= 3 \times 3 \times 2 \times 7 = 306m^2 .$$

∴ Cost of levelling per $m^2 = Rs. 3$

∴ Cost of levelling per $306m^2 = 3 \times 306 = Rs. 918$

