Answer on Question #72165 – Math – Geometry

Question

A room is 10m long and 6m breadth it has one door measuring 2mx1m and two windows each measuring 1.5mx1m. Find the cost of painting the walls of the room at the rate of Rs. 15.50 per m. Sq

Solution

To solve the problem without the height of the room, so we'll consider that the height of the door is the same as the height of the room (that is not usual because rooms are often higher than doors).

The length of all walls is

$$L = 10 + 10 + 6 + 6 = 32 \text{ (m)}$$

As we assumed that the height is 2m, then the total area of all walls is

$$S = 32 \times 2 = 64 \text{ (m}^2\text{)}$$

The total area of windows and the door is

$$S_{w+d} = 2 \times 1.5 \times 1 + 2 \times 1 = 5 \text{ (m}^2\text{)}$$

The area to be painted is

$$S_p = 64 - 5 = 59 \text{ (m}^2\text{)}$$

The cost of painting is

$$C = 59 \times 15.5 = \mathbf{914.5\ (Rs)}$$

If the height is unknown, we'll denote it by H, and the solution will be as follows:

$S = 32 \times H$ (m^2) – the total area of all walls;

$S_p = 32 \times H - 5$ (m^2) – the area that has to be painted;

$C = (32 \times H - 5) \times 15.5 =$ **$496 \times H - 77.5$ (Rs)** – the cost of painting.

Answer:

The cost of painting the walls of the room is **914.5 Rs.**