

Answer on Question #84311 – Math – Algebra

Question

How many bricks, each measuring 24 cm long, 12 cm wide and 8 cm in height will it take to build a wall of 24 meters long, 8 meters high and 60 cm thick, while 10% of the total volume of the wall is made of a mixture of cement and sand?

Solution

Length of the wall: $L = 24m = 2400cm$

Height of the wall: $H = 8m = 800cm$

Width of the wall: $W = 60cm$

Volume of the wall:

$$V = L \times H \times W$$

$$V = 2400cm \times 800cm \times 60cm = 115200000cm^3$$

Volume of wall excluding mixture of cement and sand

$$V_1 = V \cdot \frac{100\% - 10\%}{100\%}$$

$$V_1 = 115200000cm^3 \cdot 0.9 = 103680000cm^3$$

Volume of the brick:

$$V_{brick} = 24cm \times 12cm \times 8cm = 2304cm^3$$

Number of the bricks

$$N = \frac{V_1}{V_{brick}}$$

$$N = \frac{103680000cm^3}{2304cm^3} = 45000$$

Answer: it will take 45000 bricks to build the wall.