

Answer on Question #43988, Math, Geometry

A floor which measures 15 m*8 m is to be laid with tiles measuring 50 cm*25 cm. Find the number of tiles required. Further, if a carpet is laid on the floor so that a space of 1 m exists between its edges of the floor, what fraction of the floor is uncovered?

Solution

You will need

$$\begin{aligned} N &= (\text{tiles you need on 8 m side}) \times (\text{tiles you need on 15 m side}) = \\ &= 8/0.25 \times 15/0.5 = 32 \times 30 = 960 \text{ tiles} \end{aligned}$$

Fraction of uncovered when there is 1 m gap is

$$k = \frac{\text{area of gap}}{\text{total area}} = \frac{2(8 + 15) \cdot 1}{8 \cdot 15} \approx 0.38$$

Area of gap was found as perimeter multiplied by width = 1 m.