

Answer on Question #53311 – Math – Algebra

The average of midsize car is $1\frac{3}{4}$ tons. The average weight of compact car is $\frac{6}{7}$ of the weight of a midsize car. How many tons does a compact car weigh?

Solution

Let the average weight of compact car be C and the average of midsize car be M .

Given the average of midsize car is $1\frac{3}{4}$ tons, the average weight of compact car is $\frac{6}{7}$ of the weight of a midsize car, that is,

$$C = \frac{6}{7} \cdot M = \frac{6}{7} \cdot 1\frac{3}{4} = \frac{6}{7} \cdot \frac{7}{4} = \frac{6 \cdot 7}{7 \cdot 4} = \frac{6}{4} = \frac{3 \cdot 2}{2 \cdot 2} = \frac{3}{2}$$

Evaluating $1\frac{3}{4} = 1 + \frac{3}{4} = \frac{4}{4} + \frac{3}{4} = \frac{7}{4}$ we reduced fractions to the common denominator.

Besides, in order to calculate C , the following property was applied: we can cross out any factors common to both the numerator and the denominator.

Answer: $\frac{3}{2}$ tons.