Answer on Question #42200 – Physics – Molecular Physics | Thermodynamics

Question.

How much does the air in a room whose length is 6.30 m, width 2.75 m and a height of 2.40 m on the air density is 1.273 kg /m^3.

Given:

$a = 6.3\ m$ is a length of room

$b = 2.75\ m$ is a width of room

$c = 2.4\ m$ is a height of room

$\rho = 1.273\ \frac{kg}{m^3}$ is a density of air

Find:

$m = ?$ is a mass of air

Solution.

By definition density is:

$$\rho = \frac{m}{V}$$

where V is a volume

Therefore,

$$m = \rho V$$

In our case $V = abc$

So,

$$m = \rho abc$$

Calculate:

$$m = 1.273 \cdot 6.3 \cdot 2.75 \cdot 2.4 = 52.93\ kg$$

Answer.

$m = \rho abc = 52.93\ kg$