Answer on Question #45257 – Physics – Molecular Physics |Thermodynamics

Question.

A quart container of ice cream is to be made in the form of a cube. What should be the length of a side, in centimeters? (use conversion 1 gallon = 3.786 liters)

$V = 1\ quart = 0.25\ gallon = 0.9465\ l = 0.9465 \cdot 10^{-3}\ m^3 = 946.5\ cm^3$

$L = ?$

Solution.

We know the following:

$$1\ quart = 0.25\ gallon$$

$$1\ gallon = 3.786\ liters$$

$$1\ liter = \ 10^{-3}\ m^3 = 10^3\ cm^3$$

Therefore,

$$1\ quart = 946.5\ cm^3$$

Also we know the volume of a cube:

$$V = L^3$$

So,

$$L = \sqrt[3]{V}$$

Calculate:

$$L = \sqrt[3]{946.5} = 9.818\ cm$$

Answer.

$L = \sqrt[3]{V} = 9.818\ cm$