Answer on Question #82499 – Math – Algebra

Question

The base of the tank (10.5x7.5x7.5) needs to have 3 cm deep gravel. Gravel costs $5 for 500g bags from the pet store. Calculate the volume of gravel required to cover the base on your tank to a depth of 3 cm. If gravel has a density of 2.5 g/cm3, calculate the weight of gravel. Now calculate the cost of gravel needed.

Solution

We will calculate gravel volume necessary for a tank basis covering to a depth of 3 cm.

$$V = 10.5 \times 7.5 \times 3 = 236.25 cm^3$$

Find the mass of gravel using formula

$$m = \rho V = 2.5 \frac{g}{cm^3} \times 236.25 cm^3 = 590.625 g$$

Hence the cost of gravel is equal to

$$c = \frac{590.625}{500} \cdot 5\$ \approx 5.91\$$$

Answer. $V = 236.25 cm^3; m = 590.625 g; c = 5.91\$$