

COMPITO DI CHIMICA 1G 11-10-2016

1) Esegui le seguenti trasformazioni di unità di misura

$$\boxed{4,55 \cdot 10^{-2} \text{ mm} \rightarrow \text{Km}} \quad \boxed{\text{mm} = 10^{-9} \text{ m} \rightarrow \boxed{10^{-12} \text{ Km}}}$$

$$4,55 \cdot 10^{-2} \cdot 10^{-12} \text{ Km} = \boxed{4,55 \cdot 10^{-14} \text{ Km}}$$

$$\boxed{7,18 \text{ m}^2 \rightarrow \mu\text{m}^2}$$

$$\text{m} = 10^6 \mu\text{m} \quad \text{m}^2 = (10^6)^2 \mu\text{m}^2 \quad \boxed{\text{m} = 10^{12} \mu\text{m}^2}$$

$$7,18 \text{ m}^2 = \boxed{7,18 \cdot 10^{12} \mu\text{m}^2}$$

$$\boxed{4,09 \frac{\text{g}}{\text{cm}^3} \rightarrow \frac{\text{Kg}}{\text{m}^3}}$$

$$\text{g} \rightarrow 10^{-3} \text{ Kg} \\ \text{cm}^3 \rightarrow (10^{-2} \text{ m})^3 = 10^{-6} \text{ m}^3$$

$$4,09 \frac{\text{g}}{\text{cm}^3} = 4,09 \frac{10^{-3} \text{ Kg}}{10^{-6} \text{ m}^3} = \boxed{4,09 \cdot 10^3 \frac{\text{Kg}}{\text{m}^3}}$$

$$\boxed{72,4 \frac{\text{Km}}{\text{h}} \rightarrow \text{m/s}}$$

$$\text{Km} \rightarrow 10^3 \text{ m} \\ \text{h} \rightarrow 3,6 \cdot 10^3 \text{ s}$$

$$72,4 \frac{\text{Km}}{\text{h}} = 72,4 \frac{10^3 \text{ m}}{3,6 \cdot 10^3 \text{ s}} = \boxed{20,1 \frac{\text{m}}{\text{s}}}$$

$$\boxed{m = 5,66 \text{ mg} \Rightarrow \text{PESO?}}$$

$$f = m \cdot a \quad f_{\text{PESO}} = m \cdot g \quad \text{mg} = 10^{-6} \text{ Kg}$$

$$f_{\text{PESO}} = 5,66 \cdot 10^{-6} \text{ Kg} \cdot 9,8 \frac{\text{m}}{\text{s}^2} = \boxed{5,55 \cdot 10^{-5} \text{ N}}$$

2) Quanto calore devi fornire per aumentare la T di 65g di H₂O (c = 4,184 J/g K) da 40 a 55°C?

$$Q = c \cdot m \cdot \Delta t = 4,184 \frac{\text{J}}{\text{g K}} \cdot 65 \text{ g} \cdot 15^\circ\text{C} = 4079 \text{ J} \quad 4,08 \cdot 10^3 \text{ J}$$

$$\boxed{4,1 \cdot 10^3 \text{ J}}$$

3) Calcola il Volume (m³) di una sostanza che ha $d = 0,87 \text{ g/cm}^3$ sapendo che ha massa = 0,35 Kg

$$d = \frac{m}{V} \quad V = \frac{m}{d} = \frac{350 \text{ g}}{0,87 \text{ g/cm}^3} = 402 \text{ cm}^3$$

$$\text{cm}^3 = (10^{-2} \text{ m})^3 = 10^{-6} \text{ m}^3 \Rightarrow 402 \cdot 10^{-6} \text{ m}^3 \rightarrow \boxed{4,02 \cdot 10^{-4} \text{ m}^3}$$