Unit Conversions, Density, and Solubility

Michael Brodskiy
Professor: Mr. Morgan

August 20, 2020

- Unit Cancellation
    1. Only cancel out when one unit is on top and one is on bottom

$$3.24[mi] \rightarrow [\text{m}]$$
$$1[mi] = 1.6093[\text{km}]$$
$$3.24[\cancel{mi}] \cdot \frac{1.6093[\cancel{\text{km}}]}{1[\cancel{mi}]} \cdot \frac{1000[\text{m}]}{1[\cancel{\text{km}}]}$$
$$5,214[\text{m}]$$

- Density = [Mass / Volume] $\rightarrow P = \frac{m}{V}$
- Solubility − What is the maximum amount of an ionic compound that will dissolve in a liquid?
    1. Unsaturated − Below maximum of solubility
    2. Saturated − At the maximum of solubility
    3. Supersaturated − Over the maximum of solubility

Solubility of KNO_3 is $\frac{246[\text{g}]}{100[\text{g of water}]}$ at $80[C]$. What is the amount of water necessary to dissolve 100[g] of KNO_3?

$$\frac{246[\text{g } KNO_3]}{100[\text{g } H_2O]} = \frac{100[\text{g } KNO_3]}{x}$$
$$x = \frac{10000[\text{g } H_2O]}{246} = 4.065 \cdot 10^1$$