

GENERAL CHEMISTRY

STANDARD 7.3

MOLAR MASS AS A CONVERSION

- Molar Mass can be used as a conversion factor in dimensional analysis
 - Multiply by molar mass to go from number of moles to mass
 - Divide by molar mass to go from mass to number of moles

EXAMPLES

- Calculate the mass of 5.25 moles of CH_4

$$\frac{2.5 \text{ moles CH}_4}{1} \times \frac{16.04 \text{ g CH}_4}{1 \text{ mol CH}_4} = 40. \text{ grams CH}_4$$

- Calculate the number of moles in 125 g of Ca(OH)_2

$$\frac{125 \text{ g Ca(OH)}_2}{1} \times \frac{1 \text{ mol Ca(OH)}_2}{74.08 \text{ g Ca(OH)}_2} = 1.69 \text{ moles Ca(OH)}_2$$

EXAMPLES

- Calculate the number of atoms in 45 g of I_2

$$\frac{45 \text{ g } I_2}{253.8 \text{ g } I_2} \times \frac{1 \text{ mol } I_2}{1 \text{ mol } I_2} \times \frac{6.02 \times 10^{23} \text{ molecules } I_2}{1 \text{ molecule } I_2} \times \frac{2 \text{ atoms } I}{1 \text{ molecule } I_2} = 2.1 \times 10^{23} \text{ atoms } I$$