

Warm Up

Find the molar mass of:

a) Ca(OH)_2

$$(1 \times 40.08) + (2 \times 16.00) + (2 \times 1.01) \\ = \boxed{74.10 \text{ g/mol}}$$

b) $\text{C}_6\text{H}_{12}\text{O}_6$

$$(6 \times 12.01) + (12 \times 1.01) + (6 \times 16.00) \\ = \boxed{180.18 \text{ g/mol}}$$

Homework #3-6, 13-15

$$\textcircled{14} \quad 1.75 \text{ mol } \cancel{\text{CHCl}_3} \times \frac{6.02 \times 10^{23} \text{ molecules } \cancel{\text{CHCl}_3}}{1 \text{ mol } \cancel{\text{CHCl}_3}} \times \frac{5 \text{ atoms}}{1 \text{ molecules } \text{CHCl}_3}$$

$= 5.27 \times 10^{24} \text{ atoms}$

Molar Mass Conversions

Once molar mass is established, a conversion can be made from grams to moles or moles to grams (depending on the measurement of the sample)

$$Mm = \frac{m}{n}$$

← **mass (g)**
← **# of moles**

Ex. How many moles are found in 100. g of NaCl?

$$100. \text{ g NaCl} \times \frac{1 \text{ mol NaCl}}{58.44 \text{ g NaCl}} = 1.71 \text{ mol NaCl}$$

$$\text{NaCl}: (1 \times 22.99) + (1 \times 35.45) = 58.44 \text{ g/mol}$$

Ex. What is the mass of 4.50 moles of NaNO₃?

$$4.50 \text{ mol NaNO}_3 \times \frac{85.00 \text{ g NaNO}_3}{1 \text{ mol NaNO}_3} = 383 \text{ g NaNO}_3$$

$$\text{NaNO}_3: (1 \times 22.99) + (1 \times 14.01) + (3 \times 16.00) = 85.00 \text{ g/mol}$$

Homework

Worksheet