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Worksheet Conversions Moles to Grams and Grams to Mole الملف

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### Mole to Grams, Grams to Moles Conversions Worksheet

To find moles divide molar mass

To find grams multiply molar mass

What are the molecular weights of the following compounds?

- |                      |  |
|----------------------|--|
| 1) NaOH              | 2) H <sub>3</sub> PO <sub>4</sub>                  |
| 3) H <sub>2</sub> O  | 4) Mn <sub>2</sub> Se <sub>7</sub>                 |
| 5) MgCl <sub>2</sub> | 6) (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> |

Each definition can be written as a set of two conversion factors. They are:

1 mole = molar mass(g) can be written as  $\left( \frac{1 \text{ mole}}{\text{molar mass (g)}} \right)$  OR  $\left( \frac{\text{molar mass (g)}}{1 \text{ mole}} \right)$

Solve any 5 of the following:

- 1) **How many moles** are in 15 grams of lithium?
- 2) **How many grams** are in 2.4 moles of sulfur?
- 3) **How many moles** are in 22 grams of argon?
- 4) **How many grams** are in 88.1 moles of magnesium?
- 5) **How many moles** are in 2.3 grams of phosphorus?
- 6) **How many grams** are in 11.9 moles of chromium?
- 7) **How many moles** are in 9.8 grams of calcium?
- 8) **How many grams** are in 238 moles of arsenic?

Solve any 5 of the following:

- 9) How many grams are in 4.5 moles of sodium fluoride, NaF?  
 (molar mass of NaF is  $23 + 19 = 42$  g/ mole)  
 ~~$4.5 \text{ moles} \times \frac{42 \text{ grams}}{1 \text{ mole}} = 189 \text{ grams NaF}$~~  OR  $4.5 \text{ moles} \times 42 \text{ g} = 189 \text{ g}$
- 10) How many moles are in 98.3 grams of aluminum hydroxide, Al(OH)<sub>3</sub>?  
 (molar mass of Al(OH)<sub>3</sub> is  $27 + (3 \times 16) + (3 \times 1) = 78$  g/ mole)  
 ~~$98.3 \text{ grams} \times \frac{1 \text{ mole}}{78 \text{ grams}} = 1.26 \text{ moles Al(OH)}_3$~~  OR  $(98.3\text{g}/78\text{g} = 1.26 \text{ moles})$
- 11) How many grams are in 0.02 moles of beryllium iodide, BeI<sub>2</sub>?
- 12) How many moles are in 68 grams of copper (II) hydroxide, Cu(OH)<sub>2</sub>?
- 13) How many grams are in 3.3 moles of potassium sulfide, K<sub>2</sub>S?
- 14) How many moles are in  $1.2 \times 10^3$  grams of ammonia, NH<sub>3</sub>?
- 15) How many grams are in  $2.3 \times 10^{-4}$  moles of calcium phosphate, Ca<sub>3</sub>(PO<sub>3</sub>)<sub>2</sub>?
- 16) How many moles are in  $3.4 \times 10^{-7}$  grams of silicon dioxide, SiO<sub>2</sub>?
- 17) How many grams are in 1.11 moles of manganese sulfate, Mn<sub>3</sub>(SO<sub>4</sub>)<sub>7</sub>?