

Name _____ Date _____ Per _____

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 ₃ PO ₄ |
| 3) H ₂ O | 4) Mn ₂ Se ₇ |
| 5) MgCl ₂ | 6) (NH ₄) ₂ SO ₄ |

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, $\text{Al}(\text{OH})_3$?
 (molar mass of $\text{Al}(\text{OH})_3$ is $27 + (3 \times 16) + (3 \times 1) = 78$ g/ mole)
 $98.3 \text{ grams} \times \frac{1 \text{ mole}}{78 \text{ grams}} = 1.26 \text{ moles Al}(\text{OH})_3$ 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_2 ?
- 12) How many moles are in 68 grams of copper (II) hydroxide, $\text{Cu}(\text{OH})_2$?
- 13) How many grams are in 3.3 moles of potassium sulfide, K_2S ?
- 14) How many moles are in 1.2×10^3 grams of ammonia, NH_3 ?
- 15) How many grams are in 2.3×10^{-4} moles of calcium phosphate, $\text{Ca}_3(\text{PO}_3)_2$?
- 16) How many moles are in 3.4×10^{-7} grams of silicon dioxide, SiO_2 ?
- 17) How many grams are in 1.11 moles of manganese sulfate, $\text{Mn}_3(\text{SO}_4)_7$?