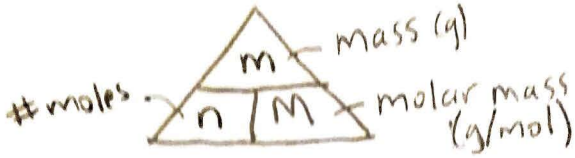

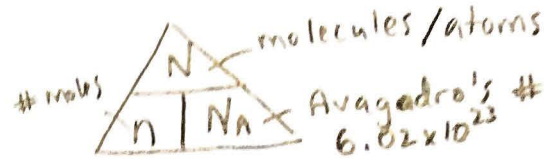

Mole Calculation Practice Worksheet - ANSWERS

Answer the following questions:

1) How many moles are in 25 grams of water?

$M_{H_2O} = \frac{H}{2(1.0079)} + \frac{O}{1(15.999)}$
$= 18.0148 g/mol$

$n = \frac{m}{M}$
$= \frac{25g}{18.0148 g/mol}$
$\doteq 1.388 mol$

2) How many grams are in 4.5 moles of Li_2O?

$M_{Li_2O} = \frac{Li}{2(6.941)} + \frac{O}{1(15.999)}$
$= 29.881 g/mol$

$m = nM$
$= (4.5 mol)(29.881 g/mol)$
$\doteq 134.46 g$

3) How many molecules are in 23 moles of oxygen?

$N = nN_A$
$= (23 moles)(6.02 \times 10^{23} molecules/mole)$
$\doteq 1.385 \times 10^{25}$ molecules

4) How many moles are in 3.4×10^{23} molecules of H_2SO_4?

$n = \frac{N}{N_A}$
$= \frac{3.4 \times 10^{23}}{6.02 \times 10^{23}}$
$\doteq 0.565 mol$

5) How many molecules are in 25 grams of NH_3?

$M_{NH_3} = \frac{N}{1(14.007)} + \frac{H}{3(1.0079)}$
$\doteq 17.031 g/mol$

$n = \frac{m}{M}$
$= \frac{25g}{17.031 g/mol}$
$\doteq 1.468 mol$

$N = nN_A$
$= (1.468 mol)(6.02 \times 10^{23})$
$\doteq 8.837 \times 10^{23}$ molecules

6) How many grams are in 8.2×10^{22} molecules of N_2I_6?

$M_{N_2I_6} = \frac{N}{2(14.007)} + \frac{I}{6(126.90)}$
$= 789.414 g/mol$

$n = \frac{N}{N_A}$
$= \frac{8.2 \times 10^{22}}{6.02 \times 10^{23}}$
$\doteq 0.1362 mol$

$m = nM$
$= (0.1362 mol)(789.414 g/mol)$
$= 107.53 g$