Mole Calculation Problems – Use 3 sig. figs. and show math set-up) <u>Circle your final answer with units.</u>

1.  Given 18.0 g of $O_2$ gas, calculate moles of $O_2$.

2.  Given 1.50 L of $N_2$ gas, calculate moles of $N_2$.

3.  Given $9.00 \times 10^{24}$ molecules of $CO_2$, calculate moles.

4.  1.4272 grams of an unknown gas is found to be 0.0446 moles. Calculate the gram molecular weight.

5.  Given 2.50 moles of $H_2O$, calculate grams of $H_2O$.

6.  Given 0.600 moles of $O_2$ gas, calculate the volume in liters at STP.

7.  How many molecules of Neon gas are in 0.0200 moles?

8.  Given 5.00 g of $CH_4$ gas, its volume at STP is _____ L.

9.  Given $1.50 \times 10^{22}$ $O_2$ molecules, its mass is _____ grams.

10. Given 1.00 L of $O_2$ gas at STP, its mass is _____ g.

11. A piece of Al metal has a mass of 2.70 g, how many Al atoms are in the sample?

12. A gold coin (Au) has a mass of 50.00 g, how many Au atoms are in the coin?

13. In a reaction 1.50 L of $H_2$ gas reacts at STP. How many $H_2$ molecules reacted?

14. A sample of Gas X has a volume of 2.00 L at STP, and a mass of 2.50 g. Its MW is _____ g/mol.

15. If $9.00 \times 10^{22}$ molecules of $O_2$ gas react, what volume of $O_2$ reacted at STP?

16. In the Lab, a student reacts 1.00 L of $O_2$ gas with 2.00 L of $H_2$ gas at STP. How many molecules of <u>each</u> reacted?