Major Steps in Determining Molar Yields:

1) Balance the Equation in Moles.
2) Write out the **Number of Moles**, **n**, of all species where this data is given.
3) Calculate the required **Number of Moles**, **n**, for the species in question.

Note #1: Show all work for all questions.

Note #2: Use the number of significant figures in your final answer that is justified by the number of significant figures of the data you were given.

Determine the number of moles of the indicated products and/or starting materials as requested:

1. The combustion of 1.2 moles of C_4H_8 produces how many moles of water.

2. When 0.024 moles of HF are reacted as follows, how many moles of $C_2H_4F_2$ are produced?

$$\_\_\_\ C_2H_2 + \_\_\_\ HF \rightarrow \_\_\_C_2H_4F_2$$

3. If a person burns 0.24 moles of C_9H_{20}, how many moles of CO_2 will be produced?

4. When the following reaction consumes 234 moles of oxygen, how many moles of C_5H_5N are produced?

$$\_\_\_\ C_5H_9N + \_\_\_\ O_2 \rightarrow \_\_\_\ C_5H_5N + \_\_\_\ H_2O$$

5. How many moles of oxygen does it take to burn 1.6 moles of C_2H_4?

6. How many moles of NaOH are consumed in the following reaction to produce 0.22 moles of Na_2SO_4?

$$\_\_\_\ H_2SO_4 + \_\_\_\ NaOH \rightarrow \_\_\_\ Na_2SO_4 + \_\_\_\ H_2O$$

7. How many moles of C_6H_6 have to be burned to produce 6.06 moles of CO_2.

8. If one wants to produce 17 moles of $Ca_3(PO_4)_2$, how many moles of H_3PO_4 should one use?

___ H_3PO_4 + ___ $Ca(OH)_2$ → ___ $Ca_3(PO_4)_2$ + ___ H_2O

9. The burning of 1.2 moles of C_4H_8 produces how many moles of CO_2.

10. When 0.024 moles of C_6H_6 are reacted as follows, how many moles of HF are consumed?

___ C_6H_6 + ___ HF → ___$C_6H_9F_3$

11. If a person combusts 0.24 moles of C_9H_{20}, how many moles of water will be produced?

12. For the following reaction, how many moles of C_5H_9N must be consumed to produce 2.2 moles of water?

___ C_5H_9N + ___ O_2 → ___ C_5H_5N + ___ H_2O

13. How many moles of C_2H_4 does it take to consume 1.5 moles of oxygen in a combustion reaction?

14. How many moles of BH_3 are consumed in the following reaction to produce 12 moles of SiH_4?

___ BH_3 + ___ $SiCl_4$ → ___ BCl_3 + ___ SiH_4

15. How many moles of C_6H_6 have to be burned to produce 6.00 moles of water?

16. If this reaction produces 6.0 moles of $Ca_3(PO_4)_2$, how many moles of water would be produced?

___ H_3PO_4 + ___ $Ca(OH)_2$ → ___ $Ca_3(PO_4)_2$ + ___ H_2O