Name: _____ Period: _____

1 Chemistry
Quiz Review: Stoichiometry

1. In your own words, describe what a mole is and why scientists use it.

2. How many molecules are in 1 mole of water (H_2O)? How many are in 1 mole of carbon dioxide (CO_2)?

3. If you have 5 moles of baseballs, how many baseballs is this? Write a justification for your answer.

4. How many moles of Cu do you have if you have 1.806×10^{23} atoms of Cu?

5. Calculate the molar mass of the following compounds. Show your work.

$CaSO_4$	$MnBr_3$	$Sr_3(PO_4)_2$	$C_8H_{12}OH$

   a. In your own words, describe what molar mass is and how scientists use it

6. Complete the following table:

Substance	Molar Mass	Mass in Grams	Number of Moles
NO_2		672 g	
$Ga(CN)_3$			4.2 moles
$MgCO_3$		195 g	
H_2O			0.65 moles

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1-Step Stoichiometry: Using a chemical reaction.
Phosphorus pentoxide, P_2O_5, is used as a drying agent (similar those little white packets you find in new backpacks or purses). It is made by reacting solid phosphorus, P, with oxygen gas, O_2.

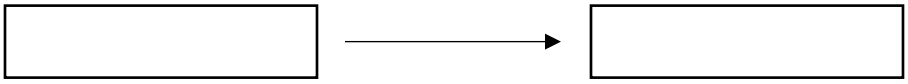
$$\mathbf{2P(s) + 5O_2(g) \rightarrow P_2O_5(s)}$$

1. Calculate the molar mass of each compound in the above reaction.

P	O_2	P_2O_5

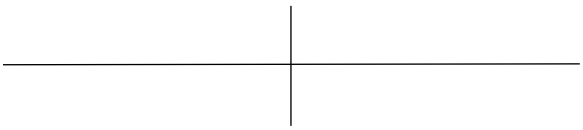
2. If a scientist makes 96.8 grams of P_2O_5, how many moles of P_2O_5 did they make?

   a. **Roadmap**:

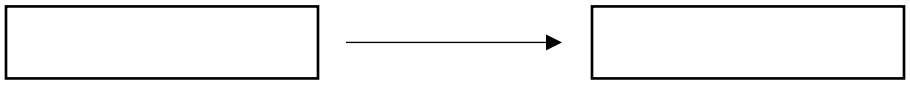
   b. **Molar Mass**:

   c. **Set up your t-chart and solve**:

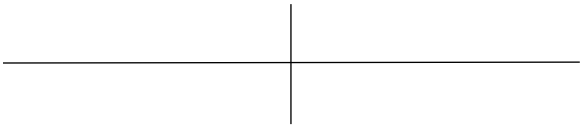
3. How many moles of O_2 would you use if you had 58.0 grams O_2?

   a. **Roadmap**:

   b. **Molar Mass**:

   c. **Set up your t-chart and solve**:

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1-Step Stoichiometry: Moles of 1 substance to grams of the **same** substance

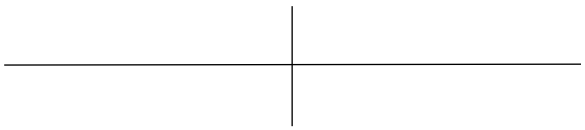
4. What is the mass of 7 moles of ammonium oxide $(NH_4)_2O$?

   a. **Roadmap**:

   b. **Molar Mass**:

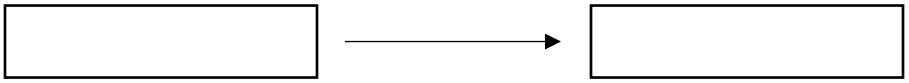
   c. **Set up your t-chart and solve**:

1-Step Stoichiometry: Grams of 1 substance to moles of the **same** substance

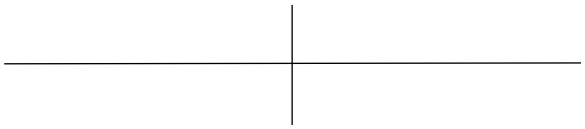
5. If you have 59.8 gram of $Mg(NO_3)_2$, how many moles do you have?

   a. **Roadmap**:

   b. **Molar Mass**:

   c. **Set up your t-chart and solve**:

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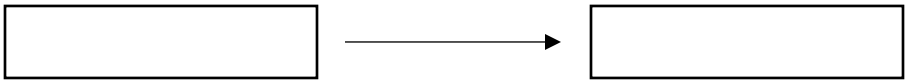
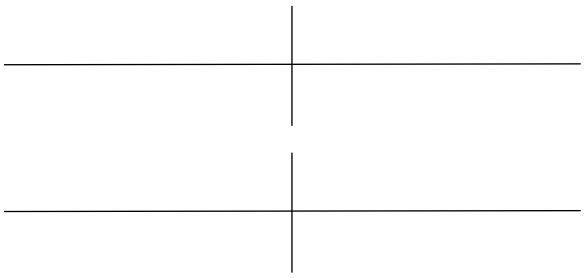
2- Step Stoichiometry: Grams of 1 substance to moles of **a different** substance

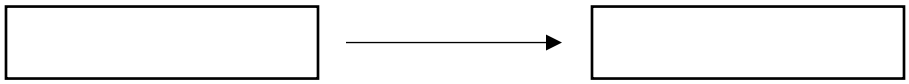
6. How many moles of H_2O do you have if you have 48.0 grams of oxygen?
   a. **Roadmap**: 
   b. **Determine sub-steps**:

   c. **Determine Mole Ratio and Molar Masses**:

   d. **Set up your t-charts and solve**:



3-Step Stoichiometry: Grams of 1 substance to grams of **a different** substance.

7. You have 16.0g of $C_6H_8O_7$. How many grams of carbon do you have?
   a. **Roadmap**: 
   b. **Determine sub-steps**:

   c. **Determine Mole Ratio and Molar Masses**:

   d. **Set up your t-charts and solve**: