

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 6F – Double Molar Conversion Review

20 Points

For the following chemical reactions, complete the chart and perform the following conversions

Chemical Equation	$\text{Cu}_2(\text{CO}_3)_3 + \text{Ag}_3\text{PO}_4 \rightarrow \text{CuPO}_4 + \text{Ag}_2\text{CO}_3$						
Molar Ratio	mol $\text{Cu}_2(\text{CO}_3)_3$	=	mol Ag_3PO_4	=	mol CuPO_4	=	mol Ag_2CO_3

Copper(III)Carbonate [$\text{Cu}_2(\text{CO}_3)_3$]		
Element	#	Molar Mass
Copper (Cu)		
Carbon (C)		
Oxygen (O)		
Copper(III)Carbonate [$\text{Cu}_2(\text{CO}_3)_3$]		

Copper(III)Phosphate [CuPO_4]		
Element	#	Molar Mass
Copper (Cu)		
Phosphorous (P)		
Oxygen (O)		
Copper(III)Phosphate [CuPO_4]		

Convert 374.28g $\text{Cu}_2(\text{CO}_3)_3$ to mol $\text{Cu}_2(\text{CO}_3)_3$	
mol $\text{Cu}_2(\text{CO}_3)_3$	

Convert ____ mol $\text{Cu}_2(\text{CO}_3)_3$ to mol Ag_2CO_3	
mol Ag_2CO_3	

Convert 2.17mol Ag_3PO_4 to mol CuPO_4	
mol CuPO_4	

Convert ____ mol CuPO_4 to mass CuPO_4	
Mass CuPO_4	

Convert 84.29L CuPO_4 to mol CuPO_4	
mol CuPO_4	

Convert ____ mol CuPO_4 to mol Ag_3PO_4	
mol Ag_3PO_4	

Chemical Equation	$2V_2O_3 + 3Cl_2 \rightarrow 2VCl_3 + 3O_2$						
Molar Ratio	mol V_2O_3	=	mol Cl_2	=	mol VCl_3	=	mol O_2

Convert 52.84L Cl_2 to mol Cl_2		Convert _____ mol Cl_2 to mol VCl_3	
mol Cl_2		mol VCl_3	

Convert 4.28mol V_2O_3 to mol Cl_2		Convert _____ mol Cl_2 to volume Cl_2	
mol Cl_2		volume Cl_2	

Chemical Equation	$3H_2SO_4 + 2Cu(OH)_3 \rightarrow Cu_2(SO_4)_3 + 6HOH$						
Molar Ratio	3 mol H_2SO_4	=	2 mol $Cu(OH)_3$	=	1 mol $Cu_2(SO_4)_3$	=	6 mol HOH
Molar Mass	<u>Molar Mass H_2SO_4 = 98.09g/mol</u>		<u>Molar Mass $Cu_2(SO_4)_3$ = 415.31g/mol</u>				

Convert 5.28mol H_2SO_4 to mol HOH		Convert _____ mol HOH to volume HOH	
5.28 mol H_2SO_4	6 mol HOH	mol HOH	22.4 L HOH
	3 mol H_2SO_4		1 mol HOH
mol HOH	mol HOH	volume HOH	L HOH

Convert 734.29g $Cu_2(SO_4)_3$ to mol $Cu_2(SO_4)_3$		Convert _____ mol $Cu_2(SO_4)_3$ to mol HOH	
g $Cu_2(SO_4)_3$	1 mol $Cu_2(SO_4)_3$		
	(above) g $Cu_2(SO_4)_3$		
mol $Cu_2(SO_4)_3$	mol $Cu_2(SO_4)_3$	mol volume HOH	

$\frac{mol_A}{mol_B}$
 Mol Ratio
 (eqn)

Mass
 "g"
 Molar Mass

Volume
 "L"
 $1 \text{ mol} = 22.4 \text{ L}$