

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

Chemical Equation	$3\text{Mg} + 2\text{AlBr}_3 \rightarrow 2\text{Al} + 3\text{MgBr}_2$			
Molar Ratio	$3 \text{ mol Mg} =$	$2 \text{ mol AlBr}_3 =$	$2 \text{ mol Al} =$	$3 \text{ mol MgBr}_2$

Convert 1.85 mol Mg to mol MgBr <sub>2</sub>	
<del>1.85 mol Mg</del>	$3 \text{ mol MgBr}_2$
	<del>3 mol Mg</del>
mol MgBr <sub>2</sub>	$1.85 \text{ mol MgBr}_2$

Convert 2.72 mol AlBr <sub>3</sub> to mol Al	
mol Al	

Aluminum Bromide [AlBr <sub>3</sub> ]		
Element	#	Molar Mass
Aluminum (Al)	1	26.98 g/mol
Bromine (Br)	3	79.90 g/mol
Aluminum Bromide [AlBr <sub>3</sub> ]		266.68 g/mol

Magnesium Bromide [MgBr <sub>2</sub> ]		
Element	#	Molar Mass
Magnesium (Mg)	1	24.31 g/mol
Bromine (Br)	2	79.90 g/mol
Magnesium Bromide [MgBr <sub>2</sub> ]		184.11 g/mol

Molar Mass Conversion  
mol and g  
mol = 1

Convert 114.0 g AlBr <sub>3</sub> to mol AlBr <sub>3</sub>	
<del>114.0 g AlBr<sub>3</sub></del>	$1 \text{ mol AlBr}_3$
	<del>266.68 g AlBr<sub>3</sub></del>
mol AlBr <sub>3</sub>	$0.43 \text{ mol AlBr}_3$

Prey Conv.  
mol AlBr<sub>3</sub> to mol MgBr<sub>2</sub>

Convert $0.43 \text{ mol AlBr}_3$ to mol MgBr <sub>2</sub>	
<del>0.43 mol AlBr<sub>3</sub></del>	$3 \text{ mol MgBr}_2$
	<del>2 mol AlBr<sub>3</sub></del>
mol MgBr <sub>2</sub>	$0.65 \text{ mol MgBr}_2$

Mol AlBr<sub>3</sub> → mol MgBr<sub>2</sub>  
Mol Ratio (Bal. Egn)  
Check Bal. egn.

Mol Mg → mol MgBr<sub>2</sub>  
Molar Ratio Conver.

Convert 9.38 mol Mg to mol MgBr <sub>2</sub>	
<del>9.38 mol Mg</del>	$3 \text{ mol MgBr}_2$
	<del>3 mol Mg</del>
mol MgBr <sub>2</sub>	$9.38 \text{ mol MgBr}_2$

Convert _____ mol MgBr <sub>2</sub> to mass MgBr <sub>2</sub>	
<del>9.38 mol MgBr<sub>2</sub></del>	$184.11 \text{ g MgBr}_2$
	<del>1 mol MgBr<sub>2</sub></del>
mass MgBr <sub>2</sub>	$1726.95 \text{ g MgBr}_2$

Use balanced eqn. when conv. mol<sub>A</sub> → mol<sub>B</sub>, otherwise mol = 1

Chemical Equation	$3\text{CuCO}_3 + 2\text{AlCl}_3 \rightarrow 3\text{CuCl}_2 + \text{Al}_2(\text{CO}_3)_3$			
Molar Ratio	mol $\text{CuCO}_3 =$	mol $\text{AlCl}_3 =$	mol $\text{CuCl}_2 =$	mol $\text{Al}_2(\text{CO}_3)_3$

Convert 0.94mol $\text{CuCO}_3$ to mol $\text{AlCl}_3$	
mol $\text{AlCl}_3$	

Convert 4.28mol $\text{Al}_2(\text{CO}_3)_3$ to mol $\text{CuCl}_2$	
mol $\text{CuCl}_2$	

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

Aluminum Chloride [ $\text{AlCl}_3$ ]		
Element	#	Molar Mass
Aluminum [Al]		
Chlorine [Cl]		
Aluminum Chloride [ $\text{AlCl}_3$ ]		

Convert 114.0g $\text{CuCO}_3$ to mol $\text{CuCO}_3$	
mol $\text{CuCO}_3$	

Convert ____ mol $\text{CuCO}_3$ to mol $\text{Al}_2\text{O}_3$	
mol $\text{Al}_2\text{O}_3$	

Convert 3.64mol $\text{CuCl}_2$ to mol $\text{AlCl}_3$	
mol $\text{AlCl}_3$	

Convert ____ mol $\text{AlCl}_3$ to mass $\text{AlCl}_3$	
mass $\text{AlCl}_3$	