

Topic Reminder: Quiz 9  
Solution Stoichiometry

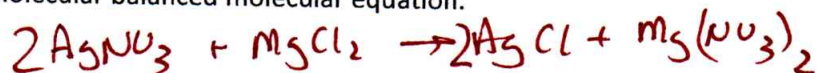
1. A 10mL beaker of 0.5M  $\text{AlCl}_3$  has 10mL of water added to it.

Determine the concentration of each ion before and after the water is added.

	Before	After		
$[\text{Al}^{3+}]$	.5	0.25	$M_1 V_1 = M_2 V_2$	$x = 0.25$
$[\text{Cl}^{-}]$	1.5	0.75	$.5 \cdot 10 = x \cdot 20$	
			$1.5 \cdot 10 = x \cdot 20$	$x = .75$

2. A 10mL beaker of 0.5M  $\text{MgCl}_2$  has 10mL of 1.0M  $\text{AgNO}_3$  added to it forming  $\text{AgCl}$ .

- a. Write the molecular balanced molecular equation.



- b. Determine the concentration of each ion before and after the reaction.

$[\text{Mg}^{2+}]$	.5	$\rightarrow$	.25
$[\text{Cl}^{-}]$	1.0	$\rightarrow$	0
$[\text{Ag}^{+}]$	1.0	$\rightarrow$	0
$[\text{Mg}^{2+}]$ $[\text{NO}_3^{-}]$	1.0	$\rightarrow$	.5

Limiting ions:  $\text{Cl}^{-}$   $\text{Ag}^{+}$   
these match

Charges match  
 $\text{Mg}^{2+} +1$   
 $-.25 \quad .5$

- c. In the beakers below draw the before and after beakers. Use the smallest number of particles required to express the concentrations.

