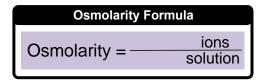
## **CONCEPT: OSMOLARITY**

• Osmolarity (ionic molarity) represents the number of \_\_\_\_\_\_ of ions per \_\_\_\_\_ of solution.

## **Method 1: Direct Calculation of Osmolarity**

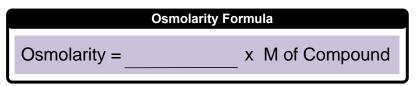
• In the first method, we use the \_\_\_\_\_ of ions and \_\_\_\_ of solution with its formula to calculate osmolarity.



**EXAMPLE:** Calculate the molarity of chloride ions when dissolving 58.1 g AlCl<sub>3</sub> in enough water to make 500 mL of solution.

## **Method 2: Osmolarity from Molarity**

• If the molarity of a compound is known then the osmolarity for each of its ions can be determined by:



**EXAMPLE:** What is the concentration of hydroxide ions in a 0.350 M solution of gallium hydroxide, Ga(OH)<sub>3</sub>?

## **Method 3: Number of lons from Molarity**

• Problems involving # of ions and molarity can use a given amount and conversion factors to isolate an end amount.

**EXAMPLE:** How many moles of Ca<sup>2+</sup> ions are in 0.120 L of 0.450 M Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> solution?

CONCEPT: OSMOLARITY			
PRACTICE: Which of the following solutions will have the highest concentration of bromide ions?			
a) 0.10 M NaBr	b) 0.10 M CaBr <sub>2</sub>	c) 0.10 M AIBr <sub>3</sub>	d) 0.05 M MnBr <sub>4</sub>
<b>PRACTICE:</b> How many milligrams of nitride ions are required to prepare 820 mL of 0.330 M Ba <sub>3</sub> N <sub>2</sub> solution?			
<b>PRACTICE:</b> How many bromide ions are present in 65.5 mL of 0.210 M GaBr <sub>3</sub> solution?			