

Name: \_\_\_\_\_ Section: \_\_\_\_\_

**Understanding Chemical Formulas - Subscripts, Parentheses, Coefficients**

$\text{BaF}_2$	<u><b>Subscripts</b></u> - the 2 in this formula is called the <i>subscript</i> . It refers only to the element preceding it. In this case the F (fluorine).
$\text{Al}(\text{NO}_3)_3$	<u><b>Parentheses</b></u> - in some chemical formulas it is necessary to use parentheses. The subscript outside the parentheses refers to all the elements inside the parentheses. In this example there are: one Al (aluminum), three N (nitrogen), and nine O (oxygen).
$3 \text{BaF}_2$	<u><b>Coefficients</b></u> - the 3 in this formula is called the <i>coefficient</i> . It refers to each element that follows. In this case there would be 3 Ba (barium) and 3 $\text{F}_2$ (a total of 6 fluorine).

**Examples** - calculate the number of atoms in each of the following formulas:

1. KCl	- one K (potassium) - one Cl (chlorine)	total of 2
2. $\text{HNO}_3$	- one H (hydrogen) - one N (nitrogen) - three O (oxygen)	total of 5
3. $\text{Al}(\text{OH})_3$	- one Al (aluminum) - three O (oxygen) - three H (hydrogen)	total of 7
4. $4 \text{K}_2\text{SO}_4$	- eight K (potassium) - four S (sulphur) - sixteen O (oxygen)	total of 28

**Directions:** Use the information on the front of this sheet to calculate the individual and total number of atoms in each of the following.

1. NaCl	Na - Cl -	Total	6. 6 H <sub>2</sub> SO <sub>4</sub>	H - S - O -	Total
2. Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub>	Al - C - H - O -	Total	7. Si(HCO <sub>3</sub> ) <sub>4</sub>	Si - H - C - O -	Total
3. 2 KOH	K - O - H -	Total	8. 2 HNO <sub>3</sub>	H - N - O -	Total
4. KMnO <sub>4</sub>	K - Mn - O -	Total	9. 2 Al(CO <sub>2</sub> ) <sub>3</sub>	Al - C - O -	Total
5. K <sub>2</sub> SO <sub>4</sub>	K - S - O -	Total	10. 3 B <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub>	B - C - O -	Total