Name: KEY Date: _____ Period: _____

Science 10: Counting Atoms Worksheet

SUMMARY

For each element, you may need to multiply three numbers together.

- Coefficient in front of compound or element
- Subscript next to element
- Subscript outside of bracket containing element

e.g. oxygen: $4Ni(NO_3)_2$

If you see a plus sign, then count the atoms in all compounds or elements first. Finally, add the counts for all repeated elements together.

How many…?	Subscript next to element	Subscript outside of bracket containing element	Coefficient	Multiply
Oxygen in $3H_2O$	1	N/A	3	1 x 3 = 3
Oxygen in $4Ni(NO_3)_2$	3	2	4	3 x 2 x 4 = 24
Nickel in $2Ni(NO_3)_3$	1	N/A	2	1 x 2 = 2
Oxygen in N_2O_4	4	/	/	4
Vanadium in $2V(HSO_3)_4$	1	/	2	1×2 = 2
Oxygen in $2V(HSO_3)_4$	3	4	2	3×4×2 = 24
Hydrogen in $2V(HSO_3)_4$	1	4	2	1×4×2 = 8
Chromium in $4Mn_2(CrO_4)_3$	1	3	4	1×3×4 = 12
Iron in $2Fe_2S_3$	2	/	2	2×2 = 4
Hydrogen in $(NH_4)_3P$	4	3	/	4×3 = 12
Carbon in $3Rb_2CO_3$	1	/	3	1×3 = 3
Carbon in $Cr(CH_3COO)_3$ (2 carbon in polyatomic ion)	2	3	/	2×3 = 6
Hydrogen in $2Mg(CH_3COO)_2$	3	2	2	3×2×2 = 12

For each of the following, count the total number of each unique element.

$2BF_3 + 3N_2$	B: 2	F: 6	N: 6
$3CO_2 + 4H_2O$	C: 3	O: 6+4 = 10	H: 8
$2C_3H_8 + H_2SO_4$	C: 6	H: 16+2 = 18	S: 1 O: 4
$3N_2 + Ca(NO_3)_2$	N: 6+2 = 8	Ca: 1	O: 6
$P_2Cl_4 + 2CuCl_2$	P: 2	Cl: 4+4 = 8	Cu: 2
$2S_8 + Mn_2(SO_3)_3$	S: 16+3 = 19	Mn: 2	O: 9
$H_3PO_4 + 3NaOH$	H: 3+3 = 6	P: 1	O: 4+3 = 7 Na: 3
$3C_2H_5OH + 5O_2$	C: 6	H: 18	O: 3+10 = 13