Assignment 6A – Counting Atom Review   20 Points

For the balanced reactions below determine the total number of atoms and molecule and/or compounds on each side of the reaction based on the in-class notes and examples

Handwritten annotations (left margin):
Coefficients from equation (red)
subscripts (blue)
$3Na_2O$
3×2   3×1
6   3

$3Na_2O + 2AlCl_3 \rightarrow 6NaCl + Al_2O_3$

Reactants				Products			
Na_2O	**3**	$AlCl_3$	**2**	$NaCl$	**6**	Al_2O_3	**1**
Na	$3 \times 2 = 6$	Al	$2 \times 1 = 2$	Na	$6 \times 1 = 6$	Al	$1 \times 2 = 2$
O	$3 \times 1 = 3$	Cl	$2 \times 3 = 6$	Cl	$6 \times 1 = 6$	O	$1 \times 3 = 3$

$Ca_3P_2 + 2FeBr_3 \rightarrow 3CaBr_2 + 2FeP$

Reactants				Products			
Ca_3P_2		$FeBr_3$		$CaBr_2$		FeP	
Ca		Fe		Ca		Fe	
P		Br		Br		P	

$3TiO_2 + 4MnI_3 \rightarrow 3TiI_4 + 2Mn_2O_3$

Reactants				Products			
TiO_2		MnI_3		TiI_4		Mn_2O_3	
Ti		Mn		Ti		Mn	
O		I		I		O	

$3NaOH + VF_3 \rightarrow 3NaF + V(OH)_3$

Reactants				Products			
NaOH	**3**	VF_3	**1**	NaF		$V(OH)_3$	**1**
Na	$3 \times 1 = 3$	V	$1 \times 1 = 1$	Na	$3 \times 1 = 3$	V	$1 \times 1 = 1$
O	$3 \times 1 = 3$	F	$1 \times 3 = 3$	F	$3 \times 1 = 3$	O	$1 \times 1 \times 3 = 3$
H	$3 \times 1 = 3$					H	$1 \times 1 \times 3 = 3$

$\mathbf{3}Cr(BrO_3)_2 + \mathbf{2}Zn_3N \rightarrow Cr_3N_2 + \mathbf{6}ZnBrO_3$

Reactants				Products			
$Cr(BrO_3)_2$		Zn_3N		Cr_3N_2		$ZnBrO_3$	
Cr		Zn		Cr		Zn	
Br		N		N		Br	
O						O	

$\mathbf{3}Ca(NO_3)_2 + \mathbf{2}Na_3PO_4 \rightarrow \mathbf{1}Ca_3(PO_4)_2 + \mathbf{6}NaNO_3$
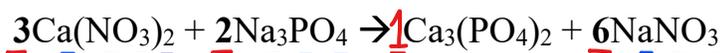
Reactants				Products			
$Ca(NO_3)_2$	3	Na_3PO_4	2	$Ca_3(PO_4)_2$	1	$NaNO_3$	6
Ca	3×1 =3	Na	2×3 = 6	Ca	1×3 = 3	Na	6×1 = 6
N	3×1×2 = 6	P	2×1 = 2	P	1×1×2 = 2	N	6×1 = 6
O	3×3×2 = 18	O	2×4 = 8	O	1×4×2 = 8	O	6×3 = 18

$\mathbf{2}Be(CN)_2 + Li_2SO_4 \rightarrow BeSO_4 + \mathbf{2}LiCN$
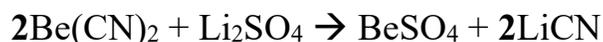
Reactants				Products			
$Be(CN)_2$		Li_2SO_4		$BeSO_4$		$LiCN$	
Be		Li		Be		Li	
C		S		S		C	
N		O		O		N	

$\mathbf{3}Pb(S_2O_3)_2 + \mathbf{2}Cu_2(CO_3)_3 \rightarrow \mathbf{3}Pb(CO_3)_2 + \mathbf{2}Cu_2(S_2O_3)_3$
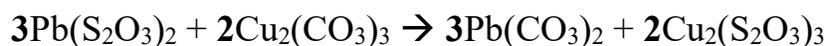
Reactants				Products			
$Pb(S_2O_3)_2$		$Cu_2(CO_3)_3$		$Pb(CO_3)_2$		$Cu_2(S_2O_3)_3$	
Pb		Cu		Pb		Cu	
S		C		C		S	
O		O		O		O	