Noteset 4E (Part 1) - In Class Noteset

Balancing Chemical Reactions Part 1

Balancing Reactions

$Na^+ + Cl^- \rightarrow Na_1Cl_1$

Na : 1	Na : 1
Cl : 1	Cl : 1

Eqn. has same # of reactants and products (balanced)

$Al^{3+} + Cl^{1-} \rightarrow Al_1Cl_3$

Al : 1	Al : 1
Cl : 1	Cl : 3

Product has more Cl than the reactants 1 Cl vs. 3 Cl (not in balance)

Balancing Process

$3\,Sn + \_\_\,N_2 \rightarrow \_\_\,Sn_3N_2$

Sn	~~1~~ 3 ← 3·1	Sn	3
N	2	N	2

Steps | Sn

1 : 3 3-1

Steps

1. Write Rxn
2. Count atoms and/or ions
3. Add coefficents
4. Continue Balance.
5. Check Answer

Balancing Process

$4\ Na + \_\_\ O_2 \rightarrow 2\ Na_2O$

Na	✗ 4	Na	✗ 4
O	2	O	✗ 2

Steps | O: 2:1 (1-2) | Na: 1:4 (4-1)

Steps

1. Write Rxn
2. Count atoms and/or ions
3. Add coefficents
4. Continue Balance.
5. Check Answer

2:2

$4\ 2\ Na + \_\_\ O_2 \rightarrow 2\ Na_2O$

Na	✗ 2 4	Na	✗ 4
O	2	O	✗ 2

Steps | 1 Na: 1:2 (2-1) | O: 2:1 (1-2) | 2 Na: 2:4 (2-1)

Balancing Process

1:2

$\_2\_ Al + \_3\_ Cl_2 \rightarrow \_2\_ AlCl_3$

Al	~~X~~ 2	Al	~~X~~ 2
Cl	~~2~~ 6	Cl	~~3~~ 6

Steps	Cl		Al	
	2:3	3-2	1:2	2-1

Steps

1. Write Rxn
2. Count atoms and/or ions
3. Add coefficents
4. Continue Balance.
5. Check Answer

$\_\_ Cu + \_3\_ ClO_3 \rightarrow \_\_ Cu(ClO_3)_3$

Cu	1	Cu	1
ClO_3	~~X~~ 3	ClO_3	3

Steps	ClO_3	
	1:3	3-1