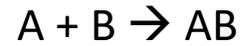


Combination Reaction

Reaction	Fe + N ₂ →	
	Fe = +2	
	A + B → AB	
A	Fe	B N
Formula	A	B (5N)
Ion Charge	+2	-3
Cross Method	Fe	N
AB	Fe ₃ N ₂	

Combo Reaction



Reactant A	Reactant B
Representative Metals	Representative Non-Metals
Transition Metals	Negative Polyatomic Ions
Positive Polyatomic Ions	

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Decomposition Reaction

Reaction	MnF ₃ → +	
	AB → A + B	
AB	MnF ₃	A Mn B F ₂



Diatomic Elements
H ₂ , N ₂ , O ₂ F ₂ , Cl ₂ , Br ₂ , I ₂

Always check for diatomic w/ decomp

Decomp Reaction



Reactant AB	Products A + B
Ionic Compound	Metal or Hydrogen Ion
Covalent Molecule	Non-Metal, Diatomic Element, or poly. ion

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Single Replacement Reaction

Reaction	Ti + Na ₂ CO ₃ → +		
	Ti = +4		
	A + BC → AC + B		
A	Ti	BC	Na ₂ CO ₃
		B	Na
Formula	A	C	(Poly)
Ion Charge	+4	-2	
Cross Method	Ti	(CO ₃)	
AC	Ti(CO ₃) ₂ *		

$\frac{\text{Na}_2\text{CO}_3}{\text{B} \mid \text{C}}$
**Reduce*
 $\frac{\text{Ti}_2(\text{CO}_3)_4}{\frac{2}{2} \mid \frac{2}{2}}$

SR Reaction



Reactant	Reactant
A	BC
Single More Active Element	Ionic Compound or Acid

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Single Replacement Reaction

Reaction	Ti + Na ₂ CO ₃ → +		
	Ti = +4		
	A + BC → AC + B		
A	Ti	BC	Na ₂ CO ₃
		B	Na
Formula	A	C	(Poly)
Ion Charge	+4	-2	
Cross Method	Ti	(CO ₃)	
AC	Ti(CO ₃) ₂ *		

$\frac{\text{Na}_2\text{CO}_3}{\text{B} \mid \text{C}}$
**Reduce*
 $\frac{\text{Ti}_2(\text{CO}_3)_4}{\frac{2}{2} \mid \frac{2}{2}}$

SR Reaction



Reactant	Reactant
A	BC
Single More Active Element	Ionic Compound or Acid

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Double Replacement Reactions

Double Replacement Reaction

A chemical reaction where two compounds switch their positive ions creating two new compounds.

Acid Base Reaction

A double replacement reaction where an acid (HX or HXO_y) react with a base (YOH) to produce water (H_2O) and an ionic compound, called a salt.



DR Reaction



Reactants	Products
AB + CD	AD + CB
Two Compounds	Two Compounds

Acid/Base Reaction



Reactants	Products
Acid + Base	Salt + H_2O