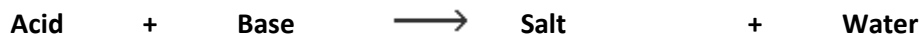


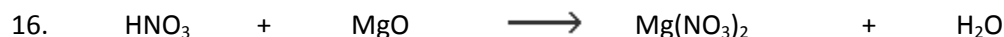
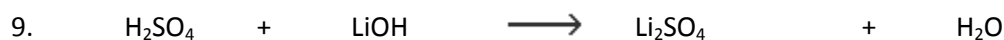
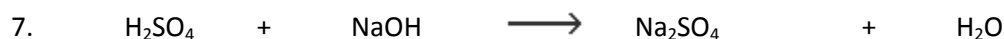
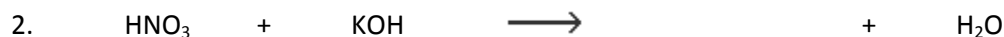
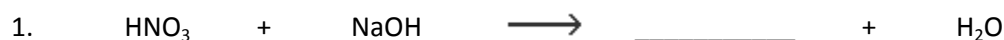
Balancing Chemical Equations Worksheet – Intermediate Level

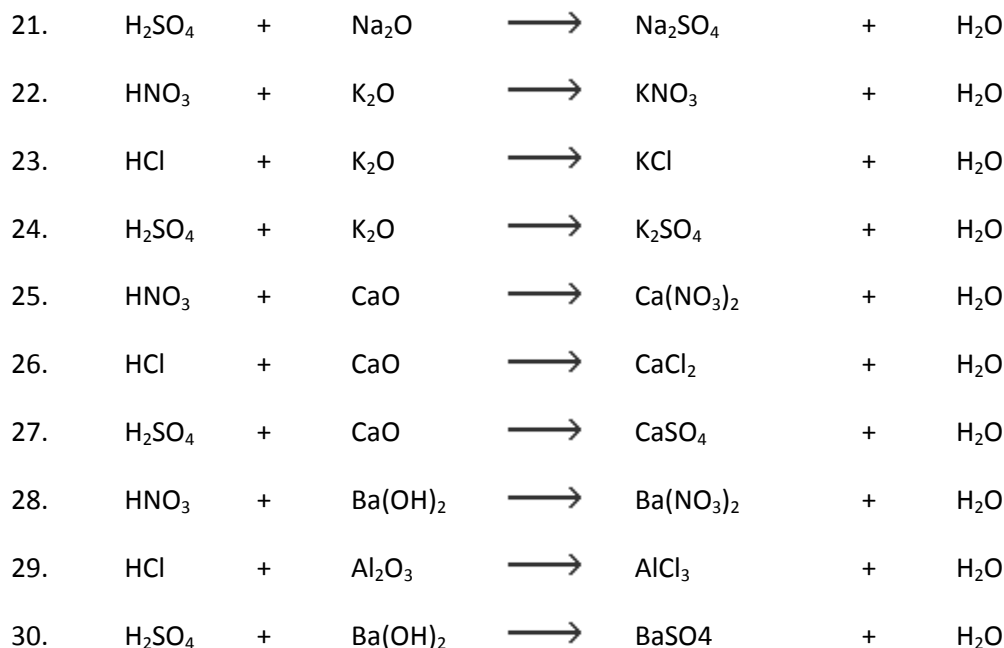
Neutralization Reactions

Salts are produced by the action of acids. Salts are written metal first, then non-metal. Eg. NaCl not ClNa

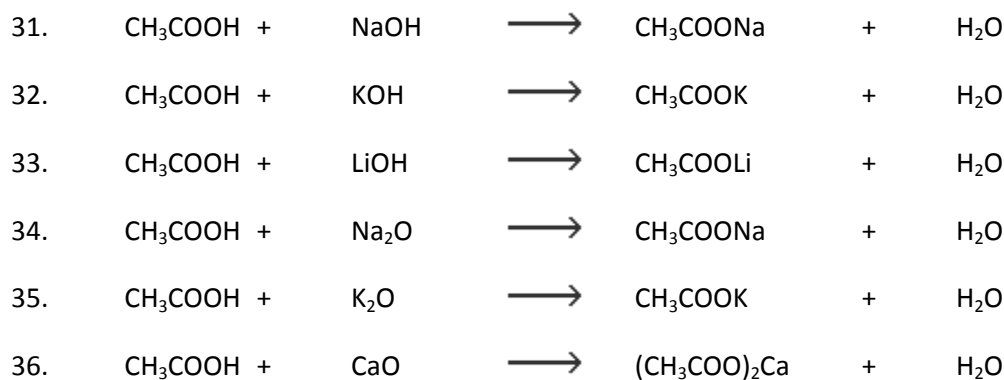


Balance the equation if required.

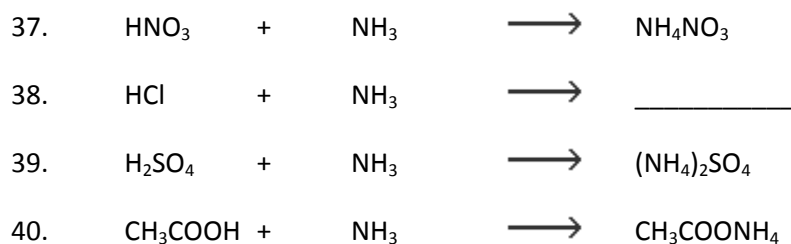




Acetate salts, are written acetate group first and metal second. The acetate group, CH_3COO^- is written first as the **negative charge** is on the **oxygen atom** and not the carbon atom. The negative oxygen atom is attracted to the positive metal ion. Eg. Sodium acetate, formula CH_3COONa is really $\text{CH}_3\text{COO}^-\text{Na}^+$ and not $\text{Na}^+\text{CH}_3\text{COO}^-$



The reaction of an acid with ammonia, NH_3 does not produce water.



Balancing Chemical Equations Worksheet – Advanced Level

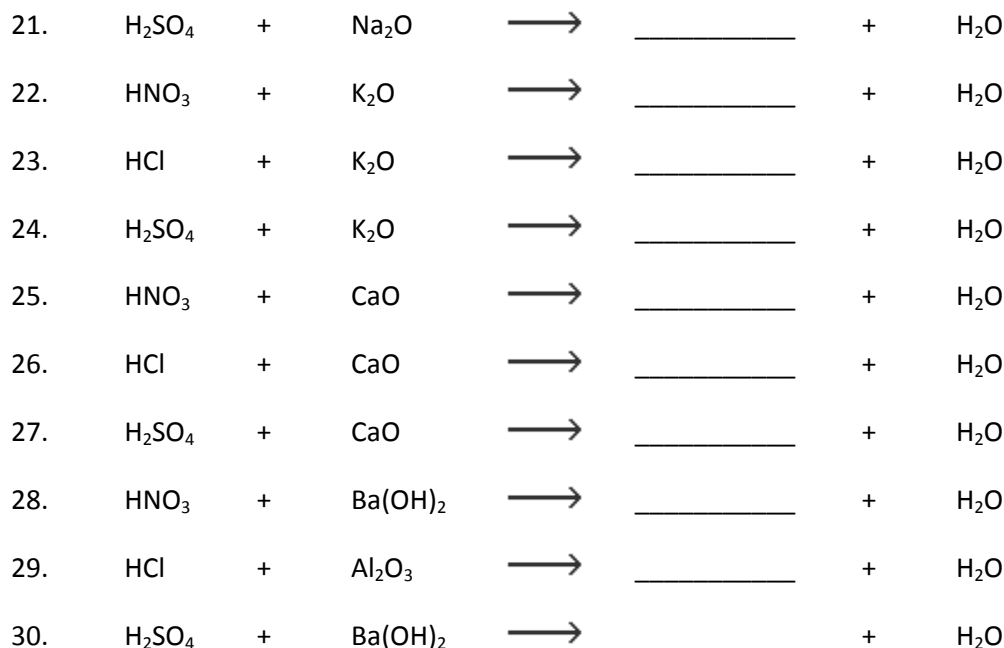
Neutralization Reactions

Salts are produced by the action of acids. Salts are written metal first, then non-metal. Eg. NaCl not ClNa

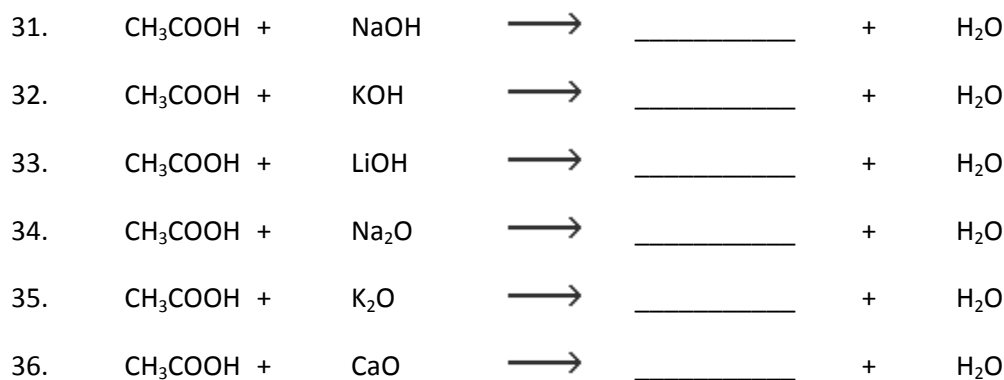


Identify the salt produced and balance the equation if required.

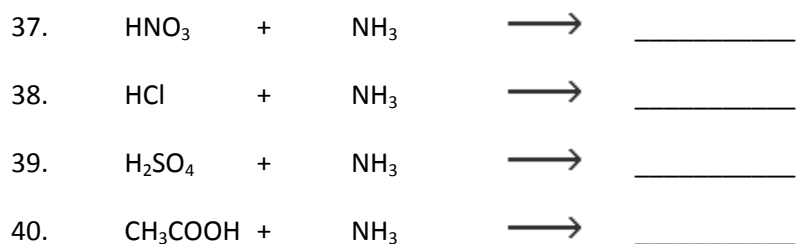
- $\text{HNO}_3 + \text{NaOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{KOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{LiOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{NaOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{KOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{LiOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{NaOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{KOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{LiOH} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{Mg(OH)}_2 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{Mg(OH)}_2 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{Mg(OH)}_2 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{Al(OH)}_3 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{Al(OH)}_3 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{Al(OH)}_3 \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{MgO} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HCl} + \text{MgO} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{H}_2\text{SO}_4 + \text{MgO} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
- $\text{HNO}_3 + \text{Na}_2\text{O} \longrightarrow \underline{\hspace{2cm}} + \text{H}_2\text{O}$
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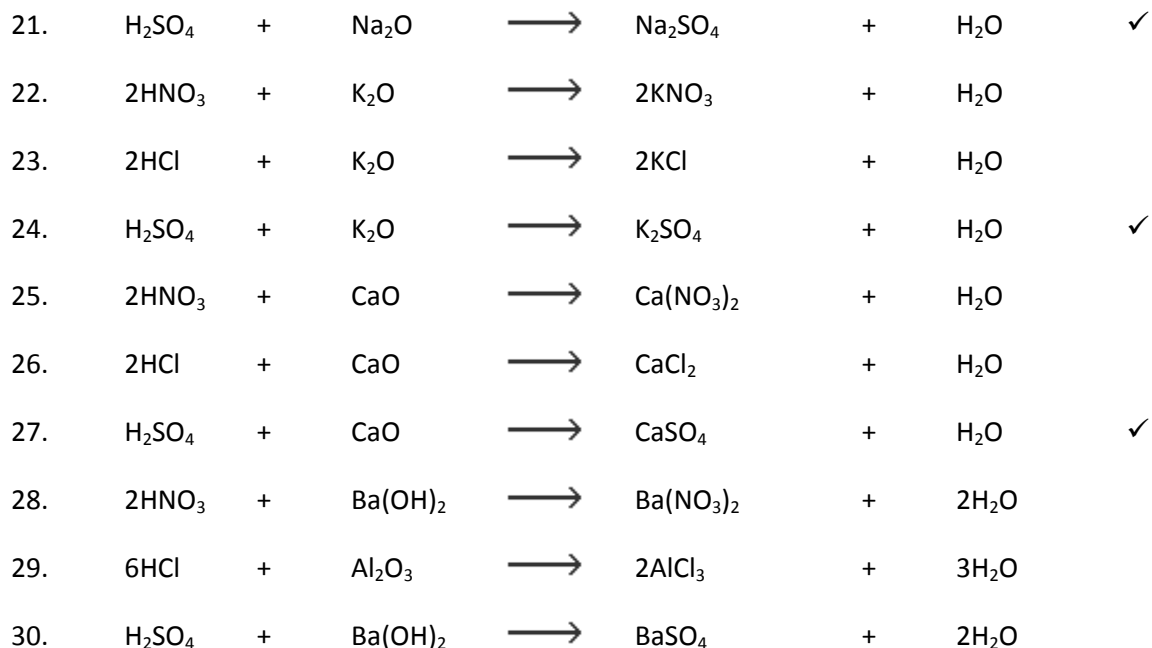


Balancing Chemical Equations Worksheet - ANSWERS

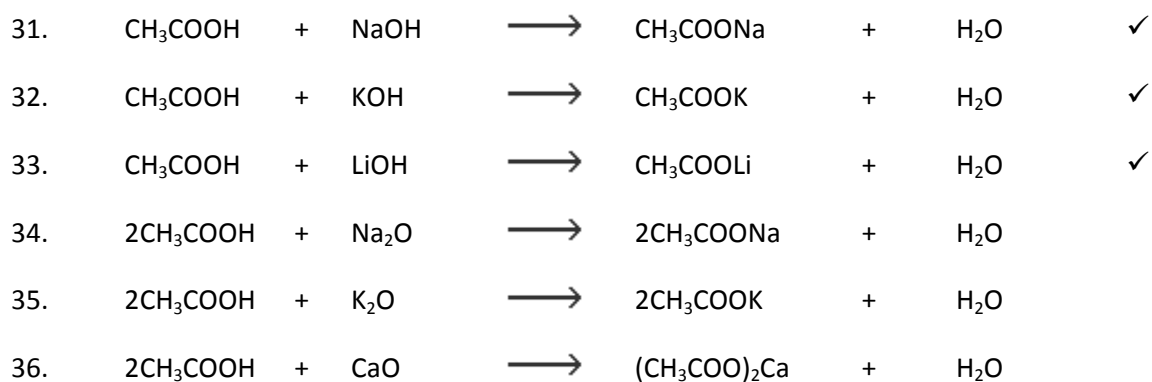
Neutralization Reactions

✓ = already balanced

	Acid	+	Base	→	Salt	+	Water	
1.	HNO ₃	+	NaOH	→	NaNO ₃	+	H ₂ O	✓
2.	HNO ₃	+	KOH	→	KNO ₃	+	H ₂ O	✓
3.	HNO ₃	+	LiOH	→	LiNO ₃	+	H ₂ O	✓
4.	HCl	+	NaOH	→	NaCl	+	H ₂ O	✓
5.	HCl	+	KOH	→	KCl	+	H ₂ O	✓
6.	HCl	+	LiOH	→	LiCl	+	H ₂ O	✓
7.	H ₂ SO ₄	+	2NaOH	→	Na ₂ SO ₄	+	2H ₂ O	
8.	H ₂ SO ₄	+	2KOH	→	K ₂ SO ₄	+	2H ₂ O	
9.	H ₂ SO ₄	+	2LiOH	→	Li ₂ SO ₄	+	2H ₂ O	
10.	2HNO ₃	+	Mg(OH) ₂	→	Mg(NO ₃) ₂	+	2H ₂ O	
11.	2HCl	+	Mg(OH) ₂	→	MgCl ₂	+	2H ₂ O	
12.	H ₂ SO ₄	+	Mg(OH) ₂	→	MgSO ₄	+	2H ₂ O	
13.	3HNO ₃	+	Al(OH) ₃	→	Al(NO ₃) ₃	+	3H ₂ O	
14.	3HCl	+	Al(OH) ₃	→	AlCl ₃	+	3H ₂ O	
15.	3H ₂ SO ₄	+	2Al(OH) ₃	→	Al ₂ (SO ₄) ₃	+	6H ₂ O	
16.	2HNO ₃	+	MgO	→	Mg(NO ₃) ₂	+	H ₂ O	
17.	2HCl	+	MgO	→	MgCl ₂	+	H ₂ O	
18.	H ₂ SO ₄	+	MgO	→	MgSO ₄	+	H ₂ O	✓
19.	2HNO ₃	+	Na ₂ O	→	2NaNO ₃	+	H ₂ O	
20.	2HCl	+	Na ₂ O	→	2NaCl	+	H ₂ O	



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