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Types of Reaction

- What type of reaction is this?
- $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
 - _____
- $3\text{MgCl}_2 + 2\text{AlBr}_3 \rightarrow 2\text{AlCl}_3 + 3\text{MgBr}_2$
 - _____

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Neutralization Reactions

- When $\text{Mg}(\text{OH})_2$ and HCl react, a neutralization reaction occurs.
- A neutralization reaction is a reaction in which an acid and a base in an aqueous solution react to produce a salt and water.
- A salt is an ionic compound made from the cation from a base, and an anion from an acid.
- Neutralization is a double replacement reaction.

$$\text{HCl} + \text{NaOH} \rightarrow \text{H}_2\text{O} + \text{NaCl}$$

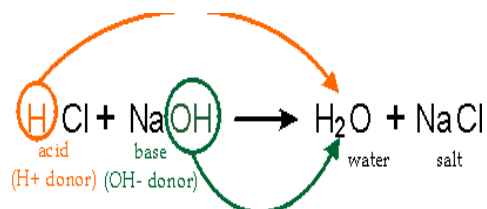
acid
base
water
salt

(H⁺ donor)
(OH⁻ donor)

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Types of Reaction

- Neutralization occurs when:
 - an Arrhenius acid and an Arrhenius base react to form WATER and a SALT (both neutral)
 - # of H⁺ ions = # of OH⁻ ions (equivalent or equal amounts)



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Types of Reaction

- You don't always get a completely neutral solution!
 - Strong acid + strong base = pH 7 (neutral)
 - Weak acid + weak base = pH 7 (neutral)
 - Strong acid + weak base = pH < 7 (acidic)
 - Weak acid + strong base = pH > 7 (basic)
- Make sure your equations are balanced!

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Neutralization Reaction Example

- When Mg(OH)₂ and HCl react, a neutralization reaction occurs.

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Neutralization Reaction Practice



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Neutralization Reaction Practice



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Neutralization Reaction Practice



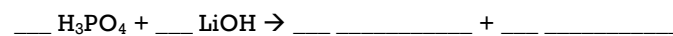
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Neutralization Reaction Practice



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Neutralization Reaction Practice



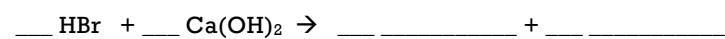
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Neutralization Reaction More Practice



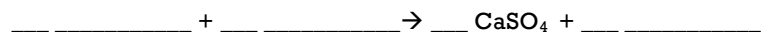
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Neutralization Reaction More Practice



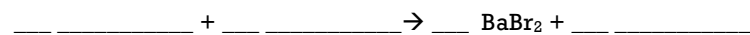
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Neutralization Reaction More Practice



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Neutralization Reaction More Practice



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