

The pH Scale & Acid-Base Neutralization (Pg. 170-172)

What tools do chemists use to measure the acidity or basicity of a solution?

What does a pH value below 7 indicate about a solution? How does the acidity of a solution change as the pH value decreases?

What does it mean when a solution has a pH above 7? How does the basicity of a solution change as the pH value increases?

What is the outcome of a neutralization reaction between an acid and a base?

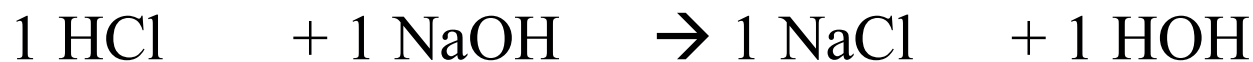
Why does the pH of a solution approach 7 when an acid and a base are combined?

What can we use to monitor the progress of a neutralization reaction?

Summarize two of the neutralization reactions from the text.

Predict the Products of these Neutralization Reactions.

hydrogen chloride and sodium hydroxide



Diagrams

Diagrams

hydrogen sulfate and sodium hydroxide



Diagrams

Diagrams

sodium hydroxide and hydrogen carbonate



Diagrams

Diagrams

Which solution is more acidic?

Using an indicator and a base, determine the relative strengths of acidic solutions using a method called titration. Which is to observe when a solution turns from acidic to basic.

To measure the relative acidity of a solution:

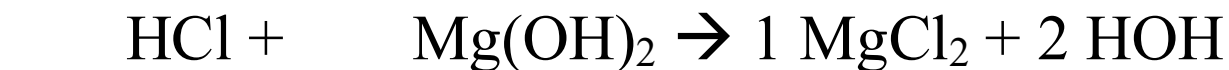
1. Add 10 drops of 0.1 mol HCl solution to the test plate.
2. Add 1 drop of bromothymol blue indicator solution.
3. Count the number of drops of NaOH required **to change the indicator solution color**.
4. Repeat the process for the remaining solutions.

10 Drops of This	Drops of 0.1 mol/L NaOH needed.		10 Drops of This	Drops of 0.1 mol/L NaOH needed.		10 Drops of This	Drops of 0.1 mol/L NaOH needed.
0.1 mol/L hydrochloric acid			0.1 mol/L sulfuric acid			0.1 mol/L acetic acid	
0.5 mol/L hydrochloric acid			0.5 mol/L sulfuric acid			0.5 mol/L acetic acid	
1 mol/L hydrochloric acid			1 mol/L sulfuric acid			1 mol/L acetic acid	

Which solution takes the most NaOH to neutralize??

Predict the Products of these Neutralization Reactions.

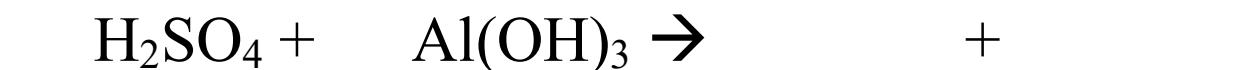
hydrogen chloride and magnesium hydroxide



Diagrams

Diagrams

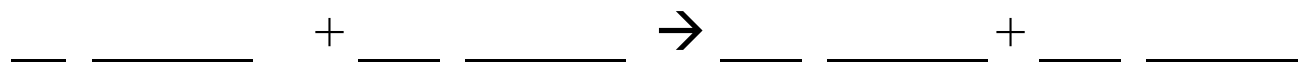
hydrogen sulfate and aluminum hydroxide



Diagrams

Diagrams

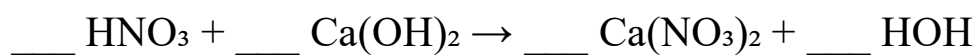
hydrogen phosphate and potassium hydroxide



Diagrams

Diagrams

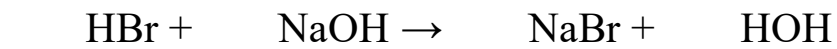
nitric acid and calcium hydroxide



Diagrams

Diagrams

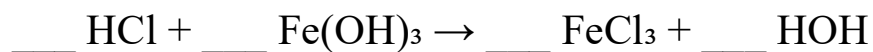
hydrobromic acid and sodium hydroxide



Diagrams

Diagrams

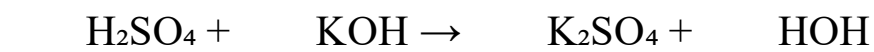
hydrochloric acid and iron(III) hydroxide



Diagrams

Diagrams

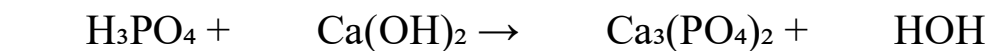
sulfuric acid and potassium hydroxide



Diagrams

Diagrams

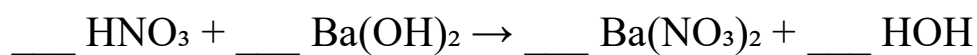
phosphoric acid and calcium hydroxide



Diagrams

Diagrams

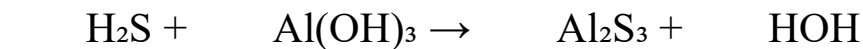
nitric acid and barium hydroxide



Diagrams

Diagrams

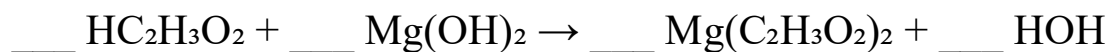
hydrosulfuric acid and aluminum hydroxide



Diagrams

Diagrams

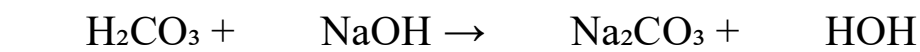
acetic acid and magnesium hydroxide



Diagrams

Diagrams

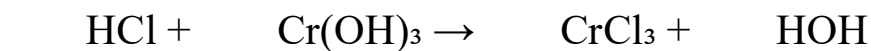
carbonic acid and sodium hydroxide



Diagrams

Diagrams

hydrochloric acid and chromium(III) hydroxide



Diagrams

Diagrams