Name: _____ **Date:** _____

Chemistry *~ Ms. Hart* **Class:** Anions or Cations

THE URBAN ASSEMBLY SCHOOL FOR CRIMINAL JUSTICE

9.3 Classwork – Neutralization Reaction

SPARK:

Write the chemical formula for potassium chromate.

BLAST FROM THE PAST

Magnesium nitrate contains chemical bonds that are

(1) covalent, only
(2) ionic, only
(3) both covalent and ionic
(4) neither covalent nor ionic

Which substance can be broken down by a chemical change?

(1) antimony (3) hexane
(2) carbon (4) sulfur

In terms of energy and entropy, systems in nature tend to undergo changes toward

(1) higher energy and higher entropy
(2) higher energy and lower entropy
(3) lower energy and higher entropy
(4) lower energy and lower entropy

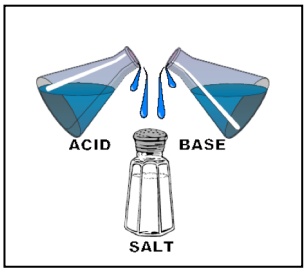
Given the structural formula:

H—C≡C—H

What is the total number of electrons shared in the bond between the two carbon atoms?

(1) 6 (3) 3
(2) 2 (4) 4

Neutralization Reactions:



- In order to neutralize (make it so the pH is 7) an acid, we must add a _____.
- In order to neutralize a base, we must add an _____.

NEUTRALIZATION REACTIONS

Example:

_____ HCl + _____ NaOH → _____ + _____

Complete and balance each of the acid base neutralizations below.

a. ____ H_2SO_4 + ____ $Mg(OH)_2$ → _____ + _____

b. ____ HI + ____ KOH → _____ + _____

c. ____ H_3PO_4 + ____$Ca(OH)_2$ → _____ + _____

d. ___ HBr + ___ $Ba(OH)_2$ → _____ + _____

e. ___H_3PO_4 + ___KOH → _____ + _____

f. ___HCl + ___NaOH → _____ + _____

g. _____ HNO_3 + ___ $Al(OH)_3$ → _____ + _____

h. ___H_2SO_4 + ___NaOH → _____ + _____

i. ___$HClO_3$ + ___$Al(OH)_3$ → _____ + _____

Classwork

1. Which type of reaction occurs when equal volumes of 0.1M HCl and 0.1M NaOH are mixed?
   (1) oxidation
   (2) reduction
   (3) hydrolysis
   (4) neutralization
2. The reaction between one mole of hydrogen ions and one mole of hydroxide ions is called
   (1) oxidation
   (2) reduction
   (3) hydrolysis
   (4) neutralization
3. Which compound reacts with an acid to produce water and a salt?
   (1) CH_3Cl
   (2) CH_3COOH
   (3) KCl
   (4) KOH
4. Which products are formed when an acid reacts with a base?
   (1) an alcohol and carbon dioxide
   (2) an ester and water
   (3) a soap and glycerin
   (4) a salt and water
5. Which compound is a salt?
   (1) Na_3PO_4
   (2) H_3PO_4
   (3) CH_3COOH
   (4) $Ca(OH)_2$
6. Which formula represents a salt?
   (1) KOH
   (2) KCl
   (3) CH_3OH
   (4) CH_3COOH
7. When NaOH reacts completely with HCl and the resulting solution is evaporated to dryness, the solid remaining is
   (1) an ester
   (2) an alcohol
   (3) a salt
   (4) a metal
8. Sulfuric acid, H_2SO_4 (aq), can be used to neutralize barium hydroxide, $Ba(OH)_2$ (aq). What is the formula for the salt produced by this neutralization?
   (1) BaS
   (2) $BaSO_2$
   (3) $BaSO_3$
   (4) $BaSO_4$

9. Soil pH can affect the development of plants. For example, a hydrangea plant produces flowers when grown in acidic soil but pink flowers when grown in basic soil. Evergreen plants can show a yellowing of foliage, called chlorosis, when grown in soil that is too basic.
   Acidic soil can be neutralized by treating it with calcium hydroxide, $Ca(OH)_2$, commonly called slaked lime. Slaked lime is slightly soluble in water.
   a) Write an equation, using symbols or words, for the neutralization of the ions in acidic soil by the ions released by slaked lime in water.