

Chemical Reactions and Compounds SKILLS REVIEW

D What Law is the reason you have to balance chemical reactions? Conservation of Mass

-Explain HOW you go about balancing reactions.

Balance the number of atoms on each side of the reaction by adding coefficients in front of elements/compounds

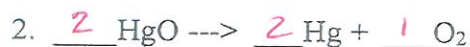
-What are the types of reactions? AND how do you recognize each one?



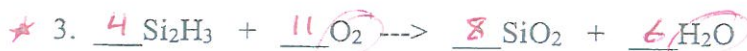
For each reaction: Identify the type of reaction and balance it



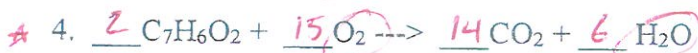
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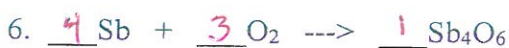
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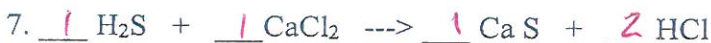
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DD



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IV) -How do you identify compounds as Ionic or Covalent?

Ionic → Metal / Non-metal

Covalent → Non-metal

-How do you name: **Ionic** formulas

Covalent formulas

switch charges, lose +/-

use prefixes

-What does the name of second element always end in?

-ide

-Name the prefixes?

mono-, di-, tri-, tetra-, penta-, hexa-, septa-, octo-, nona-, deca-

-How do you make formulas for: **Ionic**

Covalent

look at charge of ions

use prefixes

-What's the significance of roman numerals?

Tells what charge transition metals have

For each of the chemical compounds: Identify the type and the name/formula

Give the chemical name for:

Give the chemical formula for:



3) Ga₂S₃ Gallium (III) sulfide

8) Barium iodide Ba I₂

4) C₃P₂ Tricarbon diphosphide

9) Nickel (III) oxide Ni₂O₃

5) CaF₂ Calcium fluoride

10) Trinitrogen pentachloride N₃Cl₅

Compound and Reaction Concepts Review

Short Answer

- When nickel combines with fluorine to form nickel (III) fluoride, the charge of the nickel ion is Ni³⁺
- The covalent compound P₂O₅ would be named Diphosphorus pentoxide.
- Give the mole ratio for the following equation:
1 Cu + 2 HF → 1 CuF₂ + 1 H₂.
- A type of reaction that produces an increase in temperature is Exothermic
- What coefficient is missing in C₂H₄ + (?)O₂ → 2CO₂ + 2H₂O?
3
- What occurs in an endothermic reaction but not in an exothermic reaction?
Energy is absorbed
- The characteristics of Covalent bonds are...
Non-metal ↔ Non-metal; Poor conductivity; solid, liquid or gas at room temp.; low melting + boiling points
- The overall charge in a compound must be NEUTRAL / EQUAL TO ZERO
- The chemical formula for an ionic compound of aluminum and bromine is AlBr₃
- In which type of bond do atoms share electrons?
Covalent
- Often atoms join so that each atom will have a full outer shell (8 valence electrons - except H and He)
- A synthesis reaction is a reaction between at least two compounds in which the reactants combine to form a single product
- What are the signs of a chemical reaction?
A new product is formed
- In a balanced chemical reaction, the total mass of the products always equals the total mass of the reactants
- The characteristics of an ionic bond are...
A metal is involved; Good conductivity; usually solid at room temp.; high melting + boiling points
- A release of energy is a sign that a chemical change is taking place, bonds are breaking
- The substances that are formed in a chemical reaction are called the Products
- Atoms sometimes form bonds to become more stable
- Oxygen atoms have six electrons in their outer shells. When two oxygen atoms bond, they will form a(n) double bond by sharing their electrons.
two pairs of electrons
 $\text{:}\ddot{\text{O}}\text{:}\text{:}\ddot{\text{O}}\text{:}$ O=O
- Sodium has one electron in its outer shell and chlorine has seven electrons in its outer shell. The atoms will form a(n) ionic bond by transferring their electrons.