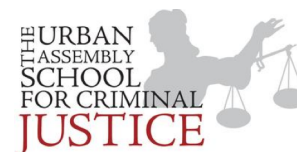


Name: _____ Date: _____

Chemistry ~ Ms. Hart

Class: Anions or Cations



Unit 6 Key Questions – Stoichiometry – Answers!

- What is the grams formula mass?
 - Total of all atomic masses in a compound (also known as molecular mass) – units are g or grams per mole (g/mol). First figure out what the different elements are, then determine the number of atoms of each element. Multiply the number of atoms by the atomic mass of that particular element.
- What is the molecular formula?
 - Tells **exactly** how many of each atom are in the molecule
- What is a subscript?
 - The small number to the right of an element. Tells how many atoms of that element are in a given compound.
- What is a coefficient?
 - The big number to the left of a substance in a chemical reaction. Tells the total number of substances.
- What is an empirical formula?
 - Tells the simplest **ratio** of atoms in a molecule
- How do we find the molecular formula from the mass and the empirical formula?
 - Step 1:** Determine the mass of the empirical formula.
 - Step 2:** Divide the formula of the compound by the mass of the empirical formula.
 - Step 3:** Multiply the subscripts of the empirical formula by the answer you got in step 2.
- What is percent composition and how do you find it?
 - Percent composition is the % mass of each element in a compound
 - Step 1:** Find the grams formula mass of the compound
 - Step 2:** Divide the total mass of each element by the molecular mass and then multiply by 100 to get percent composition.
- What is the law of conservation of mass?
 - The law of conservation of mass tells us that matter cannot be CREATED or DESTROYED
- What three things are conserved in all chemical reactions?
 - MASS, CHARGE, ENERGY. Say it out loud: MASS, CHARGE, ENERGY
- What does it mean to balance a chemical equation?
 - The total number of atoms of each element on one side **MUST** be equal to the total number of atoms of each element on the other side.
- What is a mole?
 - A mole is a unit in chemistry. $1 \text{ mole} = 6.022 \times 10^{23} \text{ atoms}$ = atomic mass of an element or grams formula mass (molar mass) of a compound
- What is Avogadro's Number?
 - 6.022×10^{23} . $1 \text{ mole} = 6.022 \times 10^{23} \text{ atoms}$
- How do we convert between moles of one thing to moles of another in a chemical reaction?
 - Find the mole ratio from the coefficients!
- How do we convert between grams and moles?
 - Step 1.** Write the given (include units!).
 - Step 2.** Determine what we need to find. (Write units!)
 - Step 3.** Calculate the gram formula mass of the molecule that we are dealing with.
 - Step 4.** Set up by listing the given first and multiply it the gram-formula mass we found in step 3 so that the unit for what we want to know is the only factor left over.

15. What is single replacement?
 - a. When one element replaces another element in a compound
 - b. General form: $A + BX \rightarrow B + AX$
16. What is double replacement?
 - a. When two compounds are mixed together and the elements in the compound switch places
 - b. General form: $AB + CD \rightarrow AD + BC$
17. What is synthesis?
 - a. When two or more reactants combine to form a single product
 - b. General form: $A + B \rightarrow AB$
18. What is decomposition?
 - a. When a single compound is broken down into two or more simpler substances
 - b. General form: $AB \rightarrow A + B$
19. What is combustion?
 - a. Reaction where a substance combines with oxygen, releasing a large amount of energy in the form of light and heat.
 - b. General form: $A + O_2 \rightarrow CO_2 + B$
20. What is the activity series and how is it used?
 - a. The activity series is the relative reactivity of different metals. The more active metal is the one that will react in a single replacement reaction. If a metal is less active, the chemical reaction will not occur.
21. What do we call the substances on the left side of a chemical equation?
 - a. Reactants
22. What do we call the substances on the right side of a chemical equation?
 - a. Products
23. How do you name ionic compounds?
 - a. Ionic compounds are between a metal and a non metal!
 - b. Essential Rules:
 - i. Use -ide at the end. Positive (cation) always written first.
 - ii. Use roman numerals if transition metal is present.
 - iii. Use names of polyatomic ions without adding ide.
 - c. Roman numerals represent the charge on a transition metal in an ionic compound name. We do not use them in covalent compounds.
 - d. Polyatomics are located in Table E! Know these!
24. How do you name covalent compounds?
 - a. Essential rules:
 - i. Use ide at the end
 - ii. Use mono (sometimes), di, tri, etc. as prefixes.
25. What is the mass of a proton, electron and neutron?
 - a. Proton = 1 amu, Neutron = 1 amu, Electron = 1/1836 amu
26. What is a physical change?
 - a. A physical change is something that does not alter the chemical composition (what it is made up of). Examples are ice melting or water freezing or ripping a sheet of paper
27. What is a chemical change?
 - a. A chemical change is a change that alters the chemical composition – new elements or compounds are formed. Examples are burning paper, breaking down H_2O_2 to H_2O and O_2 ,
28. Where are the different subatomic particles located?
 - a. Protons and neutrons are in the nucleus, electrons surround the nucleus