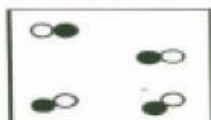


37. Physical and Chemical Properties

- Which is a physical property of Sodium?
 - 1) It is flammable
 - 2) It is shiny
 - 3) It reacts with water
 - 4) It reacts with chlorine
- Which is a chemical property of water?
 - 1) It freezes
 - 2) It boils
 - 3) It evaporates
 - 4) It decomposes
- Which best describes a chemical property of sodium?
 - 1) It is a shiny metal
 - 2) It is smooth
 - 3) It reacts vigorously with water
 - 4) It is a hard solid
- An example of a physical change is
 - 1) Boiling of water
 - 2) Combining magnesium with oxygen
 - 3) Burning of magnesium
 - 4) Exploding fireworks
- An example of a physical property of an element is the element's ability to
 - 1) Form a compound
 - 2) React with oxygen
 - 3) React with an acid
 - 4) Form an aqueous solution
- Which is a physical change of iodine?
 - 1) Iodine can react with sugar
 - 2) Iodine can react with hydrogen
 - 3) It can decompose to two iodine molecule
 - 4) Iodine can dissolve in water
- Which physical property makes it possible to separate the components of crude oil by means of distillation?
 - 1) Boiling Point
 - 2) Solubility
 - 3) Conductivity
 - 4) Melting point
- During a chemical change, a substance changes its
 - 1) Density
 - 2) Composition
 - 3) Solubility
 - 4) Phase
- Which list consists of physical properties of an element?
 - 1) Good solubility, High density, has luster
 - 2) React with water, it is a solid, it is malleable
 - 3) It explodes, low melting point, good conductivity
 - 4) Low density, poor conductivity, combines with oxygen
- Given the particle diagram representing four molecules of a substance.



Which particle diagram best represents this same substance after a physical change has taken place?

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1. Types of Matter: Recalling Facts and Definitions

1. A substance that is composed only of atoms having the same atomic number is classified as
 - 1) A compound
 - 2) An element
 - 3) A solution
 - 4) A mixture
2. Which type of matter can be separated only by physical methods?
 - 1) A mixture
 - 2) A pure substance
 - 3) An element
 - 4) A compound
3. Which two types of matter are considered chemical pure substances?
 - 1) Elements and mixtures
 - 2) Elements and compounds
 - 3) Solutions and mixtures
 - 4) Solutions and compounds
4. Which type of matter is composed of two or more different elements chemically combined in a definite ratio?
 - 1) A compound
 - 2) An element
 - 3) A homogeneous mixture
 - 4) A heterogeneous mixture
5. Which of these terms refers to matter that could be heterogeneous?
 - 1) Element
 - 2) Compound
 - 3) Mixture
 - 4) Solution
6. Two substances, X and Y, are to be identified. Substance X cannot be broken down by a chemical change. Substance Y can be broken down by a chemical change. What can be concluded about these substances?
 - 1) X and Y are both elements
 - 2) X and Y are both compounds
 - 3) X is an element and Y is a compound
 - 4) X is a compound and Y is an element
7. Which must be a mixture of substances?
 - 1) An element
 - 2) A solution
 - 3) A liquid
 - 4) A gas
8. Which is true of all elements?
 - 1) They have fixed ratio of composition
 - 2) They cannot be decomposed
 - 3) They are composed of atoms
 - 4) All of the above
9. Which property correctly describes all compounds?
 - 1) They are always homogenous
 - 2) They are always heterogeneous
 - 3) They can be physically separated
 - 4) They cannot be decomposed
10. Which statement correctly describes a mixture?
 - 1) A mixture can consist of a single element
 - 2) A mixture must have definite composition
 - 3) A mixture can be separated by physical means
 - 4) A mixture must be homogeneous
11. One similarity between all mixtures and compounds is that both
 - 1) Are heterogeneous
 - 2) Are homogeneous
 - 3) Combine in definite ratio
 - 4) Consist of two or more substances
12. Bronze contains 90 to 95 percent copper and 5 to 10 percent tin. Because these percentages can vary, bronze is classified as
 - 1) A compound
 - 2) An element
 - 3) A mixture
 - 4) A substance
13. When a teaspoon of sugar is added to water in a beaker, the sugar dissolves. The resulting mixture is
 - 1) A compound
 - 2) An element
 - 3) A heterogeneous solution
 - 4) A homogeneous solution

WEDNESDAY

2. Types of Matter: Recognizing and Interpreting Chemical Symbols of Matter

1. Which is a formula of an element?
1) $\text{Cl}_2(g)$ 2) $\text{MgCl}_2(s)$ 3) $\text{H}_2\text{O}(l)$ 4) $\text{HF}(aq)$
2. Which substance represents a compound?
1) $\text{C}(s)$ 2) $\text{Co}(s)$ 3) $\text{CO}(g)$ 4) $\text{O}_2(g)$
3. Which symbol represents a mixture?
1) $\text{NaCl}(s)$ 2) $\text{NaCl}(aq)$ 3) $\text{NaCl}(l)$ 4) $\text{H}_2\text{O}(l)$
4. Which formula is composed of atoms with the same atomic number?
1) CO_2 2) CO 3) Cu 4) CuO
5. Which material is a mixture?
1) Water 2) Sugar 3) Air 4) Hydrogen
6. Which substance is an element?
1) Calcium 2) Ammonia 3) Calcium chloride 4) Ammonium chloride
7. Which substance can be decomposed by a chemical change?
1) Ammonia 2) Aluminum 3) Potassium 4) Helium
8. Which of these contains only one substance?
1) Sugar water 2) Saltwater 3) Rain water 4) Distilled water
9. The formula, $\text{N}_2(g)$, represents a(n)
1) compound 2) mixture 3) element 4) solution
10. The formula $\text{AlBr}_3(s)$ would be best described as
1) compound 2) mixture 3) element 4) solution
11. When $\text{NaNO}_3(s)$ is dissolved in water, the resulting solution is classified as a
1) heterogeneous compound 3) heterogeneous mixture
2) homogeneous compound 4) homogeneous mixture
12. When sample X is passed through a filter a white residue, Y, remains on the filter paper and a clear liquid, Z, passes through. When liquid Z is vaporized, another white residue remains. Sample X is best classified as a(n)
1) element 3) heterogeneous mixture
2) compound 4) homogeneous mixture
13. Which is true of the symbol $\text{KCl}(aq)$?
1) It is composed substances chemically combined
2) It composed of substances physically combined
3) It is a pure substance
4) It is a compound
14. A mixture of crystals of salt and sugar is added to water and stirred until all solids have dissolved. Which statement best describes the resulting mixture.
1) The mixture is homogeneous and can be separated by filtration
2) The mixture is homogeneous and cannot be separated by filtration
3) The mixture is heterogeneous and can be separated by filtration
4) The mixture is heterogeneous and cannot be separated by filtration

THURSDAY

4. Phases of Matter: Recalling Facts and Definitions

- Which phase of matter has a definite volume but no definite shape?
1) Aqueous 2) Solid 3) Liquid 4) Gas
- Which phase of matter has a definite volume and a definite shape?
1) Solid 2) Liquid 3) Gas 4) Aqueous
- A substance in which phase has molecules that are arranged in a regular geometric pattern?
1) Solid 2) Aqueous 3) Liquid 4) Gas
- Molecules of a substance are most random in which phase?
1) Aqueous 2) Gas 3) Solid 4) Liquid
- Substance X is a gas and substance Y is a liquid. One similarity between substance X and substance Y is that
1) Both have definite shape
2) Both have definite volume
3) Both are compressible
4) Both take the shapes of their containers
- Which correctly describe particles of substances in the gas phase?
1) Particles are arranged in regular geometric pattern and are far apart
2) Particles are in fixed rigid position and are close together
3) Particles are moving freely in a straight path
4) Particles are move freely and are close together.

5. Phases of Matter: Recognizing and Interpreting Formulas in Different Phases

- Which form of water contains water molecules that are in a regular geometric pattern?
1) $\text{H}_2\text{O}(g)$ 2) $\text{H}_2\text{O}(l)$ 3) $\text{H}_2\text{O}(aq)$ 4) $\text{H}_2\text{O}(s)$
- Which form of carbon dioxide is most likely to take the shape and volume of its container?
1) $\text{CO}_2(g)$ 2) $\text{CO}_2(s)$ 3) $\text{CO}_2(aq)$ 4) $\text{CO}_2(l)$
- Which substance has no definitely shape nor volume?
1) $\text{NH}_3(g)$ 2) $\text{NH}_3(l)$ 3) $\text{H}_2\text{O}(s)$ 4) $\text{H}_2\text{O}(g)$
- Which formula correctly represents a substance that has a definite volume but no definite shape?
1) $\text{Hg}(l)$ 2) $\text{HCl}(g)$ 3) $\text{Na}(s)$ 4) $\text{H}_2(g)$
- Which statement is correct for $\text{Fe}(s)$?
1) It has a definite shape, and is compressible
2) It has a definite shape, and is incompressible
3) It has no definite shape, and is compressible
4) It has no definite shape, and is incompressible
- Which characteristics best describe $\text{O}_2(g)$ at room temperature?
1) no definite shape and incompressible
2) definite shape and compressible
3) no definite shape and no definite volume
4) definite shape and definite volume

FRIDAY

. Subatomic Particles: Relating One Particle to Another

1. The atomic number of an element is always equal to the number of
1) Protons 2) Positrons 3) Neutrons 4) Electrons
2. In a neutral atom, the number of electrons is always equal to the number of
1) Protons plus neutrons 2) Protons minus neutrons 3) Protons only 4) Neutrons only
3. Nuclear charge of an atom is equal to the number of
1) Neutrons 2) Protons plus electrons 3) Neutrons plus neutrons 4) Protons
4. The mass number of an element is always equal to the number of
1) Protons plus electron 3) Neutrons plus protons
2) Protons plus positrons 4) Neutrons plus positrons
5. The total number of nucleons in an atom is
1) Equal to the number of protons plus the number of electrons
2) Equal to the number of protons plus the number of neutrons
3) Equal to the number of protons minus the number of electrons
4) Equal to the number of protons minus the number of electrons
6. The number of neutrons in the nucleus of an atom can be determined by
1) Adding the mass number to the atomic number of the atom
2) Adding the mass number to the number of electrons of the atom
3) Subtracting the atomic number from the mass number of the atom
4) Subtracting the mass number from the atomic number of the atom
7. The number of protons in the nucleus of an unknown element can be determined by
1) Adding the mass number to the number of electrons of the element
2) Subtracting the mass number from the number of neutrons of the element
3) Adding mass number to the number of neutrons of the element
4) Subtracting the number of neutrons from the mass number of the element