

Chemistry Unit Review Pg. 246 #2, 4-6, 12-20

2. All parts of a homogeneous mixture look the same, as in a solution. A heterogeneous mixture has two or more distinguishable parts, as in a mechanical mixture, or tiny particles of one substance held within another, as in a suspension.

4. (a) physical (b) physical (c) chemical (d) physical (e) chemical

5. Boiling refers to the process of changing state from liquid to gas, while condensing refers to the process of changing state from gas to liquid.

6. As a solid is heated, its particles begin to vibrate more quickly. If enough heat is added, the motion of the particles will break the attractions between them, and they will move farther apart. When this occurs, the solid melts.

12. Groups (or chemical families) in the periodic table are organized in columns, and periods are organized in rows. A group is an assortment of elements with similar properties. A period is a single row on the periodic table in which each successive element has one more proton per atom than the element to its left.

13. Metals are found on the left side and middle of the periodic table, non-metals on the right, and metalloids in a staircase pattern between metals and non-metals.

14. Halogens are very reactive non-metals, each with a distinctive colour. At room temperature or slightly higher, they are all gases.

15. Students' answers may vary but could include sodium or any other alkali metal.

16. (a) 1 (b) 3 (c) 4 (d) 6 (e) 7

17. (a) calcium (b) Group 2, alkaline earth metals (c) 2+. (d) 2

18. Students' answers may vary but could include the following examples:

(a) carbon or sodium

(b) silicon or arsenic

(c) sodium or lithium

(d) chlorine or bromine

19. (a) An ion charge is the charge on an atom after it gains or loses electrons to form an ion. If an atom loses an electron, it will have more protons and, as a result, a positive charge. If an atom gains an electron, it will have fewer protons and, as a result, a negative charge.

(b) By balancing opposite ion charges, the ratio of elements and thus the chemical formula of an ionic compound can be determined.

20. A metal element is most likely to form an ion by losing electrons; it will form a positive ion.