

Chapter 3

3.8

1. The letters in each box of the periodic table are the _____ for that element.
2. The integer in each box of the periodic table is the _____ of that element.
3. On the periodic table, the elements are ordered according to what?
4. Who first arranged the elements in a table, and what country was he from?
5. Why did Mendeleev arrange the elements the way he did?
6. What does the name *periodic table* refer to?
7. How is a family (also called a group) of elements arranged on the periodic table?
8. List the chemical symbols for all of the elements that are:
 - alkali metals
 - alkaline-earth metals
 - halogens
 - noble gases
9. In Figure 3.11, groups 3-12 are called the _____ metals.
10. Most of the elements are _____.
11. List four properties of metals.
12. Where are the metals located on the periodic table, relative to the stair-step line?
13. Where are the nonmetals located on the periodic table, relative to the stair-step line?

14. Elements that lie close to the stair-step are called _____ or _____.
They have properties somewhat like metals and somewhat like nonmetals.

3.10

15. An atom is neutral, meaning that:

16. How is an ion formed?

17. What is a cation, and how is one formed?

18. How is a cation named?

19. What is an anion, and how is one formed?

20. When naming anions, you take the _____ name of the atom and add the suffix “_____.”

21. How are ions NEVER formed?

22. Usually, _____ atoms do not form ions; ions usually form when _____
elements combine with _____ elements.

23. What charge do these groups get? alkali metals____ alkaline-earth metals____ halogens____

24. What is unique about the cations that transition metals form?

25. Metals tend to form _____ ions, which means they tend to _____ electrons.
Nonmetals tend to form _____ ions, which means they tend to _____ electrons.

Chapter 11

11.10

26. Similar chemical properties are associated with:

27. With reference to Figure 11.31, which orbitals (give the number and letter) are filled in the forming of the: ...lanthanide series? _____ actinide series? _____

28. Why do groups of elements show similar chemistry?

29. On the periodic table, the elements in the two leftmost groups and six rightmost groups are often called the _____ elements or _____ elements.

11.11

30. Fundamentally, chemistry is a science based on what?

31. The atomic theory is an attempt to help us do what?

32. _____ remain the same over the decades, but our _____
(or _____) change as new knowledge is uncovered.

33. What happens when a metal and a nonmetal react?

34. Why are atoms more likely to lose an electron as we go down a group?

35. On the periodic table, where are the most: ...chemically active metals?
...chemically active nonmetals?

36. Atoms get _____ as we go down a group. Atoms get _____ as we go from left to right across a period.

37. As the principal energy level increases, what happens to the average distance of the electrons from the nucleus?

38. The number of protons _____ as we go left to right across a period. The resulting _____ in positive charge pulls the electrons _____ to the nucleus.

39. Define ionization energy.

40. As we go down a group, ionization energy _____.

41. As we go left to right across a period, ionization energy generally _____.

Chapter 12

12.2

42. Define electronegativity.

43. As we go down a group, electronegativity generally _____. As we go left to right across a period, electronegativity generally _____.

44. What happens if the bonding atoms have very similar electronegativities?

45. What is formed if the bonding atoms have very different electronegativities?

46. The bond is considered to be ionic if: