

CHAPTER 3 REVIEW

Atoms: The Building Blocks of Matter

SECTION 3-2

SHORT ANSWER Answer the following questions in the space provided.

1. In cathode ray tubes, the cathode ray is emitted from the negative electrode, which is called the _____.
2. The smallest unit of an element that can exist either alone or in combination with atoms of the same or different elements is the _____.
3. A positively charged particle found in the nucleus is called a(n) _____.
4. A nuclear particle that has no electrical charge is called a(n) _____.
5. The subatomic particles that are least massive and most massive, respectively, are the _____ and _____.
6. A cathode ray produced in a gas-filled tube moves away from a negative field, such as one produced by a magnet. When a paddle wheel is installed inside the tube, the wheel moves down the tube in the same direction as the cathode ray. What properties of electrons do these two phenomena illustrate?

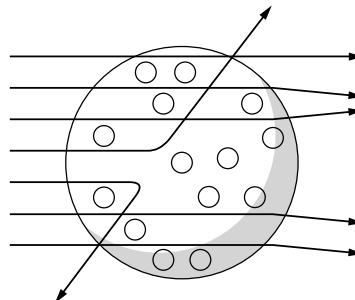
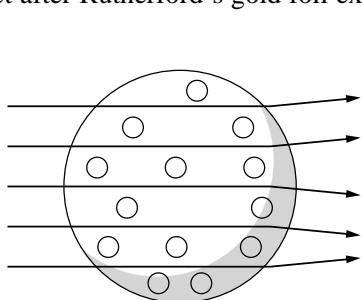
7. How would the electrons produced in a cathode ray tube filled with neon gas compare with the electrons produced in a cathode ray tube filled with chlorine gas?

8. a. Is an atom positively charged, negatively charged, or neutral?

b. How does the atom maintain this charge?

SECTION 3-2 continued

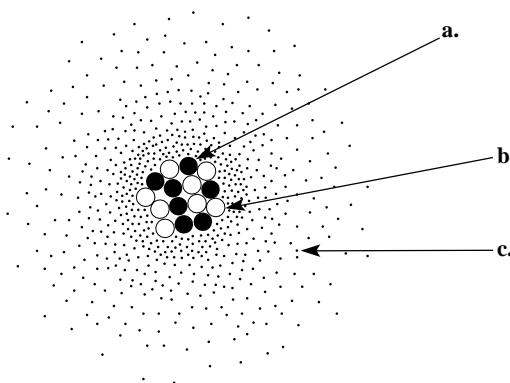
9. Below are two illustrations of scientists' conception of the atom. Label the electrons with a $-$ sign and the nucleus with a $+$ sign. On the line below the figures, identify which illustration was believed to be correct before Rutherford's gold foil experiment and which was believed to be correct after Rutherford's gold foil experiment.



a. _____

b. _____

10. In the space provided, describe the locations of the subatomic particles in the labeled model of the atom below and the charge and relative mass of each particle.



a. proton

b. neutron

c. electron
