Name: _____ **Period:** _____

Chemistry – 3.3 Chapter Review Problems: PART 1(Isotopes)

1. (3) a. What are isotopes?

b. How are the isotopes of a particular element alike?

c. How are they different?

2. (9) Complete the following table. (Hint: See Sample Problem 3-1, pp. 77-8.)

Isotope	# protons	# electrons	# neutrons
a. sodium-23			
b. calcium-40			
c. $^{64}_{29}Cu$			
d. $^{108}_{47}Ag$			

3. (3) a. What is the atomic number of an element?

b. What is the mass number of an isotope?

c. In the nuclear symbol for deuterium, $^{2}_{1}H$, identify the atomic number and the mass number.

4. (1) What is a nuclide?

5. (3) Use the periodic table and the information that follows to write the hyphen notation for each isotope described.

a. atomic number = 2, mass number = 4

b. atomic number = 8, mass number = 16

c. atomic number = 19, mass number = 39

6. (2) a. What nuclide is used as the standard in the relative scale for atomic mass?

b. What is its assigned atomic mass?

7. (2) What is the atomic mass of an atom if its mass is approximately equal to the following:

a. ⅓ that of carbon-12

b. 4.5 times as much as carbon-12

8. (3) Three isotopes of argon occur in nature—argon-36 (35.97 amu; 0.337%), argon-38 (37.96 amu; 0.063%), and argon-40 (39.96 amu; 99.600%). Given the relative masses and abundances of each isotope, calculate the average atomic mass.

9. (2) To two decimal places, what is the relative atomic mass and the molar mass of the element potassium, K?