Chemistry I

Name _____

Date _____ Per _____

Worksheet #C12: Isotope Problems

Calculating Average Atomic Mass

1. Calculate the average atomic mass of a sample of copper that is 69.17% copper-63 (62.930 amu) and 30.83% copper 65 (64.928 amu).

2. Calculate the average atomic mass of a sample of antimony that is 57.21% antimony-121 (120.938 amu) and 47.79% antimony-123 (122.904 amu).

3. Calculate the average atomic mass of a sample of lead that is 24.1% lead-206 (205.974 amu), 22.1% lead-207 (206.976 amu) and 53.8% lead 208 (207.977 amu).

4. Calculate the average atomic mass of a sample of chromium that is 4.345% chromium-50 (49.946 amu), 83.789% chromium-52 (51.941 amu), 9.501% chromium-53 (52.941 amu) and 2.365% chromium-54 (53.939 amu).

Calculating The Percents (Two Equations, Two Unknowns)

5. Neon has two isotopes, Ne-22 and Ne-20. The approximate mass of Ne-22 is 22.000 amu and the approximate mass of Ne-20 is 20.000 amu. The atomic mass of neon is 20.1798 amu. Determine the proportions of Ne-22 and Ne-20 in a naturally occurring sample of neon.

6. Boron has two isotopes, B-10 and B-11. B-10 has an approximate mass of 10.000 amu, and B-11 has an approximate mass of 11.000 amu. The atomic mass of boron is 10.811 amu. Determine the proportions of B-10 and B-11 in a naturally occurring sample of boron.

7. Europium has two isotopes, Eu-151 and Eu-152. Eu-151 has an approximate mass of 151.000 amu and Eu-152 has an approximate mass of 152.000 amu. The atomic mass of europium is 151.964 amu. Determine the proportions of Eu-151 and Eu-152 in a naturally occurring sample of europium.