NAME: **HONORS CHEMISTRY**

SECTION: AVERAGE ATOMIC MASS PROBLEM SET

Solve the following problems. Show your work. Report your answer with the appropriate number of significant figures.

1. Argon has three naturally occurring isotopes: argon-36, argon-38, and argon-40. Based on argon's reported atomic mass, which isotope do you think is the most abundant in nature? Explain your answer.

2. Iridium has two naturally occurring isotopes. Iridium-191 has a relative abundance of 37.3% and a mass of 190.961 amu. Iridium-193 has a relative abundance of 62.7% and a mass of 192.963 amu. What is the average atomic mass of iridium?

3. Calculate the atomic mass of silicon. The three silicon isotopes have atomic masses and relative abundances of 27.976927 amu (92.33%), 28.976495 amu (4.67%) and 29.973770 amu (3.10%).

4. Several isotopes of a certain atom “X” exist. 4.35% of all X atoms have a mass of 39.946 amu. 83.79% have a mass of 41.941 amu, 9.50% have a mass of 42.941 amu, and 2.36% have a mass of 43.939 amu. What is the average atomic mass of atom X?

5. Lithium has two naturally occurring isotopes. Lithium-7 has a mass of 7.016 amu and is 92.41% abundant. Using the atomic mass reported on the periodic table, determine the mass of lithium-6, the other isotope of lithium.