1. The element chlorine is composed of two different isotopes, ^{35}Cl and ^{37}Cl. The percent abundance of ^{35}Cl is 75.53% and the percent abundance of ^{37}Cl is 24.47%. The relative atomic mass of ^{35}Cl is 34.96885 u and the relative atomic mass of ^{37}Cl is 36.96590 u.

    a. Set up the mathematical equation that you would use to solve this problem and substitute the values for all known quantities.

    b. What does the sum of the fractional abundances of the two isotopes of chlorine add to? Explain.

2. The two naturally occurring isotopes of potassium with reasonable abundance are ^{39}K and ^{41}K. The atomic masses of these two isotopes are 38.9637 u and 40.9618 u. If the relative weighted average atomic mass for potassium is 39.10 u, calculate the fractional abundance of each isotope in nature assuming these are the only two important isotopes for potassium.

    a. Show the mathematical setup.

    b. Solve.

3. The atomic mass for a proton is 1.00727 u and for a neutron the atomic mass is 1.00886 u.

   a. How many protons and neutrons in each isotope of potassium listed in Question 2?

   b. Calculate what the atomic mass of the isotope ^{39}K and the isotope ^{41}K should be, using your answers in part a and the information given in the stem of this problem.

   c. Explain why the mass you calculated in part b for each isotope does not agree with the mass for these two isotopes in Question 2.