# Average Atomic Mass Calculations

*Show ALL work for every problem and watch significant figures!!*

1. The element argon contains three naturally occurring isotopes. The relative abundances and atomic masses are 0.337% (mass 35.978 amu), 0.063% (mass = 37.963 amu) and 99.600% (mass = 39.962 amu). Calculate the average atomic mass of argon.

2. There are five naturally occurring isotopes of the element zinc. The relative abundance and mass of each are as follows:

   Zinc-64 = 48.89%, 63.929 amu
   Zinc-66 = 27.81%, 65.926 amu
   Zinc-67 = 4.11%, 66.927 amu
   Zinc-68 = 18.57%, 67.925 amu
   Zinc-70 = 0.62%, 69.925 amu

   Calculate the average atomic mass of zinc.

3. Strontium consists of four isotopes with masses of 83.9134 amu (0.5%), 85.9094 amu (9.9%), 86.9089 amu (7.0%) and 87.9056 amu (82.6%). Calculate the average atomic mass of strontium.

# Average Atomic Mass Calculations (more complicated)

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4. Copper used in electric wires comes in two isotopes: $^{63}Cu$ and $^{65}Cu$. $^{63}Cu$ has an atomic mass of 62.9297 amu and an abundance of 69.17%. $^{65}Cu$ has an atomic mass of 64.9278 amu and an abundance of 30.83%. Determine the average atomic mass of copper.

5. 50.54% of the naturally occurring isotopes of bromine have an atomic mass of 78.92 amu while the remaining bromine is a different isotope.
    a. Determine the abundance of the different isotope.

    b. Use the average atomic mass of bromine from the periodic table to determine the atomic mass of this different isotope.

6. Naturally occurring europium (Eu) consists of two isotopes with masses 150.9199 amu and 152.9212 amu. Use the average atomic mass of europium from the periodic table to determine the abundances of the two isotopes.