

EXTRA PRACTICE: Isotopes & Atomic Mass

Name: _____

Use the equation for average atomic mass to answer the following questions. Show all work and correct units to receive full credit.

1. Why is the atomic mass of a carbon-12 atom reported as 12.011amu in the periodic table of elements?
2. Element X has three naturally occurring isotopes. The atomic mass (amu) and relative percent abundance of the isotopes are 159.37 amu (30.60%), 162.79 amu (15.79%), and 163.92 amu (53.61%). What is the average atomic mass of element X?
3. Antimony has two naturally occurring isotopes. Sb-121 has an atomic mass of 120.903824 amu with an abundance of 57.30% and Sb-123 has an atomic mass of 122.904222 amu with an abundance of 42.70%. What is the average atomic mass of antimony?
4. Calculate the average atomic mass of sulfur if 95.00% of all sulfur atoms have an atomic mass of 31.972 amu, 0.76% has an atomic mass of 32.971 amu, and 4.22% have an atomic mass of 33.967 amu.
5. Naturally occurring chlorine that is put in swimming pools is 75.53% Cl-35 (mass = 34.969 amu) and 24.47% Cl-37 (mass = 36.966 amu). Calculate the average atomic mass of chlorine.

6. Copper used in electric wires comes in two isotopes: Cu-63 and Cu-65. Cu-63 has an atomic mass of 62.9298 amu and an abundance of 69.09%. The other isotope, Cu-65, has an abundance of 30.91%. Using the average atomic mass of copper, calculate the actual atomic mass of isotope Cu-65.

7. Magnesium consists of three naturally occurring isotopes. The percent abundance of these isotopes is as follows: Mg-24 (78.70%), Mg-25 (10.13%), and Mg-26 (11.17%). The average atomic mass of the three isotopes is 24.3050 amu. If the atomic mass of Mg-25 is 24.98584 amu and Mg-26 is 25.98259 amu, calculate the actual atomic mass of isotope Mg-24.

8. Complete the table:

Isotope	Atomic Mass (amu)	Relative Abundance (%)
Neon-20	19.992 amu	90.51%
Neon-21	20.994 amu	
Neon-22		9.22%
	Average Atomic Mass =	Total % :