

Name _____

H Chem, Period _____

Average Atomic Mass Problems

Average atomic mass: the weighted average of the masses of all the isotopes of that element. A weighted average reflects both the **mass** and the abundance of the isotopes as they occur in nature.

Directions: Fill in the missing information. Calculate the average atomic mass of each element (show all work).

1. carbon

Isotope	% Abundance	Mass	# protons	# electrons	# neutrons	Atomic Notation
C-12	98.93%	12.0000 amu				$^{12}_6\text{C}$
C-13	1.07%	13.0034 amu				
	negligible	14.0033 amu	6		8	

Average Atomic Mass of carbon= _____

2. potassium

Isotope	% Abundance	Mass	# protons	# electrons	# neutrons	Atomic Notation
K-39	93.2581 %	38.9637 amu				$^{39}_{19}\text{K}$
K-40	0.0117 %	39.9640 amu				
	6.7302 %	40.9618 amu	19		22	

Average Atomic Mass of potassium= _____

3. Nitrogen

Isotope	% Abundance	Mass	# protons	# electrons	# neutrons	Atomic Notation
N-14	99.632%	14.0031 amu				
	0.368%	15.0001amu	7		8	

Average Atomic Mass of nitrogen= _____

4. Element Z has 2 natural isotopes. One isotope has a mass of 15.0012 amu and has a relative abundance of 31.678 %. The other isotope has a mass of 15.9998 amu and has a relative abundance of 68.322 %. Estimate the average atomic mass.
5. There are two isotopes of boron. Boron 10 has a mass of 10.012937 amu and a percent abundance of 19.9%. What must the atomic mass of this second isotope be to account for the 10.811 amu average atomic mass of boron?