

## Average Atomic Mass Worksheet

- 1) Rubidium has two common isotopes,  $^{85}\text{Rb}$  and  $^{87}\text{Rb}$ . If the abundance of  $^{85}\text{Rb}$  is 72.2% and the abundance of  $^{87}\text{Rb}$  is 27.8%, what is the average atomic mass of rubidium?
- 2) Uranium has three common isotopes. If the abundance of  $^{234}\text{U}$  is 0.01%, the abundance of  $^{235}\text{U}$  is 0.71%, and the abundance of  $^{238}\text{U}$  is 99.28%, what is the average atomic mass of uranium?
- 3) Titanium has five common isotopes:  $^{46}\text{Ti}$  (8.0%),  $^{47}\text{Ti}$  (7.8%),  $^{48}\text{Ti}$  (73.4%),  $^{49}\text{Ti}$  (5.5%),  $^{50}\text{Ti}$  (5.3%). What is the average atomic mass of titanium?
- 4) Explain why atoms have different isotopes. In other words, how is it that helium can exist in three different forms?

How to find "Average" ATOMIC MASS  
(The decimal number on the periodic table)

Name: \_\_\_\_\_

Isotope = same element same atom different # of neutrons = diff mass numbers

Zn #30 = protons = Atomic #

4  
0Zn

1. Zinc has 5 isotopes!

Zinc-64 is	48.89%	abundant.	64 x .4889 =	31.29 amu
Zinc-66 is	27.81%	abundant.	66 x .2781 =	18.35 amu
Zinc-67 is	4.11 %	abundant.	67 x .0411 =	2.75 amu
Zinc-68 is	18.57%	abundant.	68 x .1857 =	12.63 amu
Zinc-70 is	0.62%	abundant.	70 x .0062 =	+ 0.434 amu

amu = atomic mass unit



average atomic mass →

**65.45 amu**

65.39 amu

2. Sulfur has 4 isotopes!

Sulfur-32	95.0%	abundant.	_____ =	_____
Sulfur-33	0.76%	abundant.	_____ =	_____
Sulfur-34	4.22%	abundant.	_____ =	_____
Sulfur-36	0.014%	abundant.	_____ =	_____

3. Oxygen has 3 isotopes!

Oxygen-16	99.762%	abundant.	_____ =	_____
Oxygen-17	0.038%	abundant.	_____ =	_____
Oxygen-18	0.200%	abundant.	_____ =	_____

4. Carbon has 2 isotopes!

Carbon-12	98.90%	abundant.	_____ =	_____
Carbon-13	1.10%	abundant.	_____ =	_____

5. Helium has 2 isotopes!

Helium-3	0.000137%	abundant.	_____ =	_____
Helium-4	99.999863%	abundant.	_____ =	_____