

Average Atomic Mass Worksheet

Show all work.

Name _____

- 1) Rubidium is a soft, silvery-white metal that has two common isotopes, ^{85}Rb and ^{87}Rb . If the abundance of ^{85}Rb is 72.2% and the abundance of ^{87}Rb is 27.8%, what is the average atomic mass of rubidium?

- 2) Uranium is used in nuclear reactors and is a rare element on earth. Uranium has three common isotopes. If the abundance of ^{234}U is 0.01%, the abundance of ^{235}U is 0.71%, and the abundance of ^{238}U is 99.28%, what is the average atomic mass of uranium?



- 3) Titanium has five common isotopes: ^{46}Ti (8.0%), ^{47}Ti (7.8%), ^{48}Ti (73.4%), ^{49}Ti (5.5%), ^{50}Ti (5.3%). What is the average atomic mass of titanium?



- 4) Why is the average atomic mass in amu(atomic mass unit) of a carbon-12 atom reported as 12.011 instead of 12 on the periodic table of the elements?

- 5) Naturally occurring chlorine that is put in pools is 75.53% ^{35}Cl (mass = 34.969 amu) and 24.47% ^{37}Cl (mass = 36.966 amu). Calculate the average atomic mass.

- 6) Copper used in electric wires comes in two flavors (isotopes): ^{63}Cu and ^{65}Cu . ^{63}Cu has an atomic mass of 62.9298 amu and an abundance of 69.09%. The other isotope, ^{65}Cu , has an abundance of 30.91%. The average atomic mass between these two isotopes is 63.55 amu. Calculate the actual atomic mass of ^{65}Cu .



- 7) Magnesium consists of three naturally occurring isotopes. The percent abundance of these isotopes is as follows: ^{24}Mg (78.70%), ^{25}Mg (10.13%), and ^{26}Mg (11.7%). The average atomic mass of the three isotopes is 24.31 amu. If the atomic mass of ^{25}Mg is 24.98584 amu, and ^{26}Mg is 25.98259 amu, calculate the actual atomic mass of ^{24}Mg .

- 8) Complete the table:

Isotope	Mass (amu)	Relative Abundance
Neon-20	19.992	.9051
Neon-21	20.994	
Neon-22		.0922
	Ave. Atomic Mass =	Total Abund:

- 9) Consult the following list of isotope symbols: $^{204}_{82}\text{Pb}$, $^{82}_{35}\text{Br}$, $^{78}_{35}\text{Br}$, $^{208}_{82}\text{Pb}$, $^{204}_{78}\text{Pt}$, $^{205}_{82}\text{Pb}$.

- Which of the atoms represented by these symbols are isotopes of each other?
- Which part(s) of the isotope symbol was the most helpful in answering part *a*.