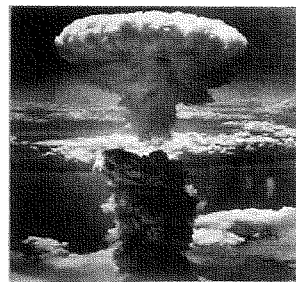


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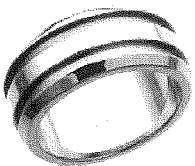
**Average Atomic Mass Worksheet: show all work.**

1) Rubidium is a soft, silvery-white metal that 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 is used in nuclear reactors and is a rare element on earth. 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?

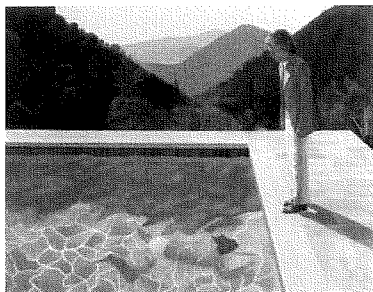


3) Titanium has five common isotopes:  $^{46}\text{Ti}$  (8.0%),  $^{47}\text{Ti}$  (7.8%),  $^{48}\text{Ti}$  (73.4%),  $^{49}\text{Ti}$  (5.5%),  $^{50}\text{Ti}$  (5.3%). What is the average atomic mass of titanium?



4) Why is the mass in amu of a carbon-12 atom reported as 12.011 in the periodic table of the elements?

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



6) Copper used in electric wires comes in two flavors (isotopes):  $^{63}\text{Cu}$  and  $^{65}\text{Cu}$ .  $^{63}\text{Cu}$  has an atomic mass of 62.9298 amu and an abundance of 69.09%. The other isotope,  $^{65}\text{Cu}$ , has an abundance of 30.91%. The average atomic mass between these two isotopes is 63.546 amu. Calculate the actual atomic mass of  $^{65}\text{Cu}$ .

7) Magnesium consists of three naturally occurring isotopes. The percent abundance of these isotopes is as follows:  $^{24}\text{Mg}$  (78.70%),  $^{25}\text{Mg}$  (10.13%), and  $^{26}\text{Mg}$  (11.7%). The average atomic mass of the three isotopes is 24.3050 amu. If the atomic mass of  $^{25}\text{Mg}$  is 24.98584 amu, and  $^{26}\text{Mg}$  is 25.98259 amu, calculate the actual atomic mass of  $^{24}\text{Mg}$ .

8) Complete the table

Isotope	Mass (amu)	Relative Abundance (%)
Neon-20	19.992	90.51
Neon-21	20.994	
Neon-22		9.22
	<b>Avg. Atomic Mass =</b>	<b>Total %:</b>