

- Calculate the number of protons and neutrons in the nuclei of each of the following atoms:
 - iodine-127
 - neon-22
 - magnesium-26
 - boron-10
 - aluminum-27
- Define the following terms:
 - atomic number
 - mass number
 - atomic mass
 - average atomic mass
- Why does the nucleus have a charge?
- Why does the nucleus of a carbon atom have a greater charge than the nucleus of a helium atom?
- In what respect is the nucleus of the lightest isotope of hydrogen unique among atomic nuclei?
- Two atoms are characterized by $Z=15$, $A=30$ and $Z=14$, $A=30$. Are they isotopes of the same element? Explain.
- Argon, potassium, and calcium all have mass numbers of 40. How many protons and neutrons are there in each of the three nuclei?

8. Copy the chart below into your notes and fill in accordingly:

	Z	# p	#n	#e	A
a. ${}^{34}_{16}\text{S}$					
b. ${}^{34}_{16}\text{S}^{2-}$					
c.	26		28	24	
d.		90		88	231
e. ${}^{65}_{29}\text{Cu}^{2+}$					
f. I^{1-}					

9. Use the information below to calculate the average atomic mass for each of the elements below. **Note:** in order to calculate the most accurate average atomic mass, use the values in the third column (accurate atomic mass).

Isotope	%	Accurate Atomic Mass (u)
N-14	99.63%	14.00307
N-15	0.37%	15.00011
Ag-107	51.83%	106.9051
Ag-109	48.71%	108.9047

Isotope	%	Accurate Atomic Mass (u)
Mg-24	78.99%	23.9850
Mg-25	10.00%	24.9858
Mg-26	11.01%	25.9826

10. Complete the following table:

Isotope Name	Z (atomic #)	A (mass #)	Symbol	# Protons	# Neutrons
a. carbon-14					
b.	8	16			
c.				84	128
d.	92				146
e. hydrogen-2					
f.	2	4			
g.				90	142
h.		12		6	
i. lawrencium-257					
j.		1			0

- How is hydrogen-1 different from hydrogen-2?
- How do different isotopes of the same element differ?