

1) Discuss the location and properties of the three fundamental subatomic particles.

2) What are isotopes? What is the mass number and how does it relate to isotopes?

3) Complete the table below. All atoms are electrically neutral.

Isotope Name	Symbol	Atomic Number	# Protons	# Neutrons	Mass Number
a)	${}_{20}\text{Ca}$				40
b)			2	2	
c)		76		114	
d) Neon-22					
e)			98		252
f)	${}_{30}^{65}\text{Zn}$				

4) Iridium (Ir, atomic #77) has two naturally-occurring isotopes, Ir-191 and Ir-193. Given that the average atomic mass of Ir is 192.2 amu, which isotope is more abundant? Explain your reasoning.

5) Calculate the atomic mass of magnesium. The three magnesium isotopes have the atomic masses and relative abundances of 23.985 amu (78.99%), 24.986 amu (10.00%), and 25.982 amu (11.01%).

6) The table below shows the three isotopes for unknown element X, along with their isotopic masses and abundances. Calculate the atomic mass of element, showing all your work, then identify it.

Isotope	Mass (amu)	Abundance (%)
X-36	35.968	0.34
X-38	37.963	0.063
X-40	39.962	99.60