

WKS 4-2
Atomic Structure & Isotopes

Name _____
Period _____ Date _____

1) List 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) Silicon has three natural isotopes: Si-28 (27.9769 amu, 92.23%), Si-29 (28.9765 amu 4.67%), and Si-30 (29.9738 amu, 3.10%). Calculate the atomic mass of silicon.

- 6) On Mars, the isotopic distribution of neon is different from that on Earth. The isotopic masses are still 19.9924 amu (Ne-20), 20.9938 amu (Ne-21) and 21.9914 amu (Ne-22). Their Martian abundances are 25.00%, 15.00% and 60.00%, respectively. What mass would Ne have on the Martian periodic table?

- 7) 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