Worksheet #14*

Name: **Period:** **Seat#:**

Directions: Any worksheet that is labeled with an * means it is suggested extra practice. We do not always have time to assign every possible worksheet that would be good practice for you to do. You can do this worksheet when you have extra time, when you finish something early, or to help you study for a quiz or a test. If and when you choose to do this Extra Practice worksheet, please do the work on binder paper. You will include this paper stapled into your Rainbow Packet when you turn it in, even if you didn't do any of this. We want to make sure we keep it where it belongs so you can do it later if you want to (or need to). If you did the work on binder paper you can include that in your Rainbow Packet after this worksheet. If we end up with extra class time then portions of this may turn into required work. If that happens you will be told which problems are turned into required. Remember there is tons of other extra practice on the class website…and the entire internet! See me if you need help finding practice on a topic you are struggling with.

Identify each as either a chemical or a physical change

1) Burning a log	**2)** Bending a wire of Aluminum	**3)** Boiling water	**4)** Melting copper
5) Water evaporating from sugar water	**6)** Digesting your lunch	**7)** Grinding sand	**8)** freezing water to make ice
9) Water is absorbed by a paper towel	**10)** A piece of Li is dropped into water and catches fire producing LiOH	**11)** A pellet of sodium hydroxide is sliced in two	**12)** Salt dissolves in water
13) Milk sours	**14)** zinc reacting with hydrochloric acid producing a gas	**15)** Iron rusting	**16)** A decaying tree trunk

Identify each as either a chemical or physical property

17) Magnetic	**18)** Red color	**19)** Dissolves in water	**20)** Density
21) Malleable	**22)** Reacts violently with Na	**23)** Soluble in alcohol	**24)** Mass
25) Temperature	**26)** Length	**27)** Odor	**28)** Flammable

Identify each as either a pure substance, homogeneous mixture, or heterogeneous mixture

29) Salami	**30)** Dirt	**31)** A burrito	**32)** Iron filings
33) Steam	**34)** Pepsi	**35)** Italian Dressing	**36)** The gas inside a balloon blown up by mouth
37) Salt water	**38)** Silver	**39)** Chicken soup	**40)** The gas inside a balloon filled with helium
41) Graphite in a pencil (carbon)	**42)** Orange juice with pulp	**43)** Kool-aid	**44)** Blood

Fill in the missing items in a table like the one below

	Name	Symbol	Z, A, # p, # e, # n	Isotopic Symbol
45)		P^{3-}		
46)	Iron			
47)			#p = 53	
48)	Silver			
49)			Z = 36	
50)		W		
51)	Magnesium Ion (+2 charge)			
52)			#p = 2	
53)		Mn		
54)	Bromine			

Solve the following problems related to average atomic masses:

55) What is the generic equation for calculating average atomic masses?

56) Argon has three naturally occurring isotopes: argon-36, argon-38, and argon-40. Based on argon's reported atomic mass, which isotope exist as the most abundant in nature? Explain

57) An unknown element has three naturally occurring isotopes in the universe with masses of 201.97 (71.6%), 200.76 (14.4%) and 199.99 (14.0%). What is the atomic mass of the element?

58) Strontium consists of four isotopes with masses of 84 (abundance 0.50%), 86 (abundance of 9.9%), 87 (abundance of 7.0%), and 88 (abundance of 82.6%). Calculate the atomic mass of strontium.

59) Naturally occurring europium (Eu) consists of two isotopes was a mass of 151 and 153. Europium-151 has an abundance of 48.03% and Europium-153 has an abundance of 51.97%. What is the atomic mass of europium?

60) Calculate the average atomic mass of magnesium using the following data for three magnesium isotopes.

Isotope	mass (amu)	relative abundance
Mg-24	23.985	78.70%
Mg-25	24.986	10.13%
Mg-26	25.983	11.17%

61) Calculate the average atomic mass of sulfur if 95.00% of all sulfur atoms have a mass of 31.972 amu, 0.76% has a mass of 32.971amu and 4.22% have a mass of 33.967amu.

62) The four isotopes of lead are shown below, each with its percent by mass abundance and the composition of its nucleus. Using the following data, first calculate the approximate atomic mass of each isotope. (Assume that each proton and neutron has a mass of 1.00 amu. Disregard the mass of the electrons.) Finally, calculate the average atomic mass of lead.

82p	82p	82p	82p
122n	124n	125n	126n
1.37%	26.26%	20.82%	51.55%

63) There are three isotopes of silicon. They have mass numbers of 28, 29 and 30. The average atomic mass of silicon is 28.086amu. What does this say about the relative abundances of the three isotopes?

64) Calculate the average atomic mass of bromine. One isotope of bromine has an atomic mass of 78.92amu and a relative abundance of 50.69%. The other major isotope of bromine has an atomic mass of 80.92amu and a relative abundance of 49.31%.

65) Calculate the atomic mass of an element if 60.4% of the atoms have a mass of 68.9257 amu and the rest have a mass of 70.9249 amu. Identify the element in the periodic table.