Unit 2 Review Outline   Name:

1. Identify the number of subatomic particles in each of the following:

Symbol	Name	# of protons	# of electrons	# of neutrons	Atomic #	Mass #	Atomic mass
^{88}Sr							
		47				110	
				18	16		

2. A sample of chromium atoms was identified to have two isotopes; ^{52}Cr and ^{56}Cr. One of the isotopes is stable and one is radioactive. Which one is stable and which is radioactive? Explain your answer.

3. Why are mass numbers always whole numbers and atomic masses are commonly not?

4. Nitrogen has two naturally occurring isotopes, N-14 and N-15. The atomic mass of nitrogen is 14.007 amu. Which isotope is more abundant in nature? Explain your answer.

5. What is the average atomic mass of silicon if 92.21 % of its atoms have a mass of 27.977 amu, 4.07 % have a mass of 28.976 amu, and 3.09 % have a mass of 29.974 amu?

6. What is the electromagnetic spectrum?

7. The half-life of chromium-51 is 28 days. If the sample contains 227 grams, how much chromium would remain after 77 days?

8. A certain wave has a frequency of 2.34 x 10^8 Hz. Find the wavelength, the energy of a photon, and the type of E.M.R.

9. Visible light is created when electrons fall to the second energy level in an atom. Explain how red light photons are produced as compared to blue light photons.

10. Write the electron configurations and orbital diagrams for the following:

   a) Phosphorus

      EC:

      OD:

   b) Vanadium

      EC:

      OD:

   c) Niobium

      EC:

      OD:

11. The electron configuration and orbital diagram for Niobium above list the sequence of orbitals in a different order. Why is this?

12. Draw a sketch for each of the 5 major atomic models we discussed in class (Dalton through Quantum).