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**Worksheet 12**

1. When reading a phase change diagram, what is the significance of the critical temperature? (Ch. 12)
2. Determine the mole fraction for a solution consisting of 158 grams of sodium chloride in 250 mL of water. (Ch. 13) **(0.83)**
3. Which of the following is an electrolyte? Why? C6H12O11, NH4Cl, H2O (Ch. 10)
4. List these elements from lowest to highest electronegativity: silver, francium, fluorine (Ch. 9)
5. Calculate the energy of a photon with a wavelength of 928 nm. (Ch. 9) **(2.14E-19 J)**
6. How do we determine “normal” boiling point? (Ch. 12)
7. How many grams of O2 will occupy 2L at 2 atm and 25⁰C. (Ch. 11) **(5.2 g)**
8. A gas sample that has a mass of 0.993 grams occupies 0.570 L. Given that the temperature is 281 K and the pressure is 1.44 atm, what is the molar mass of the gas? (Ch. 11) **(28 g/mol)**
9. Given the following data: (Ch. 8)

C6H4(OH)2(aq) → C6H4O2(aq) + H2(g) ΔH= 177.4 kJ

H2(g) + O2(g) → H2O2(g) ΔH= -191.2 kJ

H2(g) + ½ O2(g) → H2O(g) ΔH= -241.8 kJ

H2O(g) → H2O(l) ΔH= -43.8 kJ

Calculate the enthalpy change for the following reaction: **(-202.6 kJ)**

C6H4(OH)2(aq) + H2O2(g) → C6H4O2(aq) + 2 H2O(l)

1. Draw the following molecules and then indicate molecular geometry, polarity and bond angles. (Ch. 10)

AlBr3, IO4-, ClO3-, SO42-

1. Rank the following substances from lowest to highest evaporation rate and then again for greatest vapor pressure? (Ch. 12) NH3, CH4, PH3