Solutions – Colligative Properties/Practice **Name:** _____

1. What is the vapor pressure of water above a 0.20 *m* glucose ($C_6H_{12}O_6$) solution at 20°C? Use vapor pressure data from your text book. (VP H_2O at 20°C = 17.5mmHg) (ans:17.4mmHg)

2. Determine the freezing point of a
   a) 0.25 *m* urea in water (ans: -0.47°C)

   b) 5.0% para dichlorobenzene, $C_6H_4Cl_2$ (MW = g/mol) by mass in benzene (C_6H_6). (ans: 3.70°C)

3. Determine the boiling points of
   a) 0.44 *m* naphthalene in benzene (ans: 81.2°C)

   b) 1.8 M sucrose ($C_{12}H_{22}O_{11}$) in water (d= 1.23 g/mL) (ans: 101.5°C)

4. How many grams of naphthalene, $C_{10}H_8$, would you add to 50.0 g benzene (C_6H_6, Fpt. = 5.53 ^oC), to produce a solution that has the same freezing point as pure water? (ans: 6.92 g)

5. A 1.45 g sample of an unknown compound is dissolved in 25.00 mL benzene (C_6H_6, d=0.879 g/mL). The solution freezes at 4.25 ^oC. What is the molar mass of the unknown? (ans: 264g/mol)

6. Predict the approximate freezing points of: 0.10 *m* glucose ($C_6H_{12}O_6$), 0.10 *m* $CaCl_2$, 0.10 *m* CH_3COOH and 0.10 *m* KI.