Name _____________________

CHEM 1004
Quiz #4
Spring 2011 (Buckley)

1. (6 points) Consider the three primary intermolecular forces:
   - dispersion forces
   - dipole-dipole forces
   - hydrogen bonding

   For each of the following, list ALL of the forces that apply.
   a. CH₂Cl₂ _______________________
   b. Br₂ _________________________
   c. H₂O _________________________

2. (4 points) A gas is initially at a pressure of 4.0-atm and a volume of 7.5-L. If the volume is changed to 25.0-L while holding the temperature constant, what is the new pressure?

3. (4 points) A sample of gas is initially confined to a volume of 15.0-L at a temperature of 100 °C. What volume would be required to maintain the same pressure if the temperature is changed to 150 °C?

\[ \frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \quad \frac{P V_1}{T_1} = \frac{P V_2}{T_2} \quad PV = nRT \quad R = 0.08206 \frac{L\cdot atm}{mol\cdot K} \]
4. (4 points) A gas is originally confined to a volume of 50.0-L at a temperature of 25 °C and a pressure of 1.5-atm. What is the new volume if the temperature is changed to 75 °C and the new pressure decreases to 1.0-atm?

5. (4 points) A 6.0-L container has in it 3.5-atm of a gas at a temperature of 50 °C. How many moles of gas are inside the container?

\[ P_1V_1 = P_2V_2 \]
\[ \frac{V_1}{T_1} = \frac{V_2}{T_2} \]
\[ \frac{PV_1}{T_1} = \frac{PV_2}{T_2} \]
\[ PV = nRT \]
\[ R = 0.08206 \frac{L\cdot atm}{mol\cdot K} \]