System and surroundings Name_____
Homework Section_____
Due Wednesday Nov 30, 2011

1. You have two different experiments set up (at atmospheric pressure):

	A. A mixture of liquid water and water vapor with a surrounding temperature of 90 °C	**B. A mixture of liquid water and water vapor with a surrounding temperature of 110 °C**
What is the sign of **ΔH for the system?**		
What is the sign of **ΔH for the surroundings?**		
What is the sign of **ΔS for the system?**		
What is the sign of **ΔS for the surroundings?**		
What is the sign of **ΔS for the Universe?**		

2. What would ΔS for the Universe be if the temperature was 100 °C? (at atmospheric pressure)

3. Why does water condense below 100 °C and boil above 100 °C?

4. Rank the following compounds in order of increasing ΔH of vaporization (the energy required to change one mole of each compound from solid to liquid). Explain your answer in terms of the intermolecular forces in each compound (draw it out)

CH_3CH_2OH CH_3OCH_3 $CH_3CH_2CH_3$