

### E82 Fall 2002 Third Exam Skills List

1. Given the temperature or pressure of a two-phase steam-water mixture, and either the quality, the specific volume, the specific internal energy, or the specific enthalpy of the mixture, find the remaining properties, e.g., given  $T$  and  $\hat{U}$ , find  $P$ ,  $\hat{V}$ ,  $\hat{H}$ , and  $x$ .
2. Given a psychrometric chart and any two of: the dry-bulb temperature, the wet-bulb temperature, the dew-point temperature, the enthalpy at saturation, the humid volume, the relative humidity, or the absolute humidity, find the remaining properties and the enthalpy deviation.
3. Given any of the compounds in Table B.2 of *Felder & Rousseau* calculate the change in specific enthalpy going from an initial to a final temperature at constant pressure.
4. Calculate the lower heating value (in kJ/mol) and the higher heating value (in kJ/mol) of a mixture of ethylene, propylene, and propane where the composition is specified in mole fraction.