**Chemical Engineering 374**

**Reading Questions 2—Chapter 2**

**Name** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is the total kinetic energy of a fluid an intensive property or an extensive property? What about kinetic energy per unit mass?
2. What assumption do we usually make about the density of liquids and solids?
3. What is the definition of specific gravity?
4. How do Cengel and Cimbala define the gas constant “R” differently than in standard chemistry.
5. What is the advantage of expressing the energy of a fluid in terms of enthalpy rather than internal energy?
6. Write Newton’s law of viscosity (eq. 2-33). For flow between parallel plates what happens to force as (a) viscosity increases; (b) velocity increases); (c) plate separation decreases?
7. True or False, shear stress is like a pressure? True or False, shear stress is a momentum flux ( that is rate of momentum per time per area)?
8. How do the viscosities of liquids vary as the temperature increases? What about gases?
9. What is the density and viscosity of air and liquid water at 20 C in English and SI units?
10. What is the density and viscosity of air and liquid water at 20 C in English and SI units? (Repeat until memorized…)