**Chemical Engineering 374**

**Reading Questions 3—Chapter 3.1**

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

1. How does gage pressure differ from absolute pressure? Which is used in thermodynamic relations such as the ideal gas law?
2. Write the following 2 eqns. five times each (or until memorized): dP/dz = -g, P=gh (the latter for const g; remember, z point up).
3. What do you do if you want P, but  and or g varies? (Don’t just write stuff, make sure you know how to do it.)
4. What assumptions are made in the derivation of Equation 3-9?
5. How would Equation 3-9 change if horizontal body forces were also present?
6. When gravity is the only body force present (the usual case), how does pressure in a static fluid depend on the horizontal x and y directions?
7. Write 1 atm of pressure in units of psi, and Pa.
8. Write 1 atm of pressure in units of psi, and Pa. (Repeat instead of counting sheep).