ME 510 Fall 2001
HW #2
Due Tuesday Sept. 18th by 5:00 p.m.

1. Read chapter 1 in Saad.

2. 2.23 in Saad

3. Calculate the flow rate of water at 68°F in the system shown in figure. 1. The upper tank is arranged so that the liquid level is maintained at a height of 12 feet above the outlet. List any assumptions you make (i.e. entrance geometry, elbow radius, etc.)

4. 1.5 in Saad

5. 1.15 in Saad

6. 1.19 in Saad

7. A supersonic plane is traveling at an altitude of 2000 m in standard atmosphere. What is the Mach number of the plane if an observer on the ground hears the engine noise 5 s after it passes directly overhead? Assume an average temperature of 20°C.

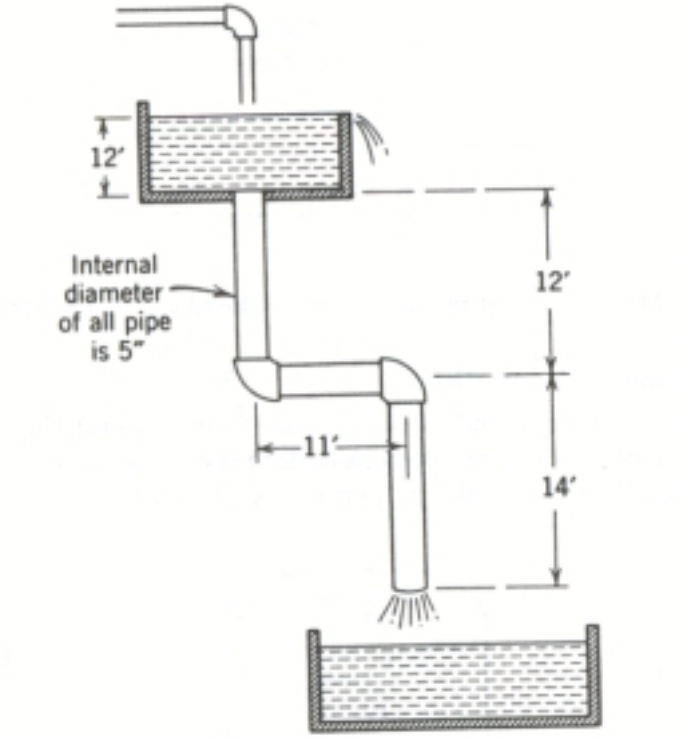

Figure 1. Schematic of pipe and tank system (problem 2).