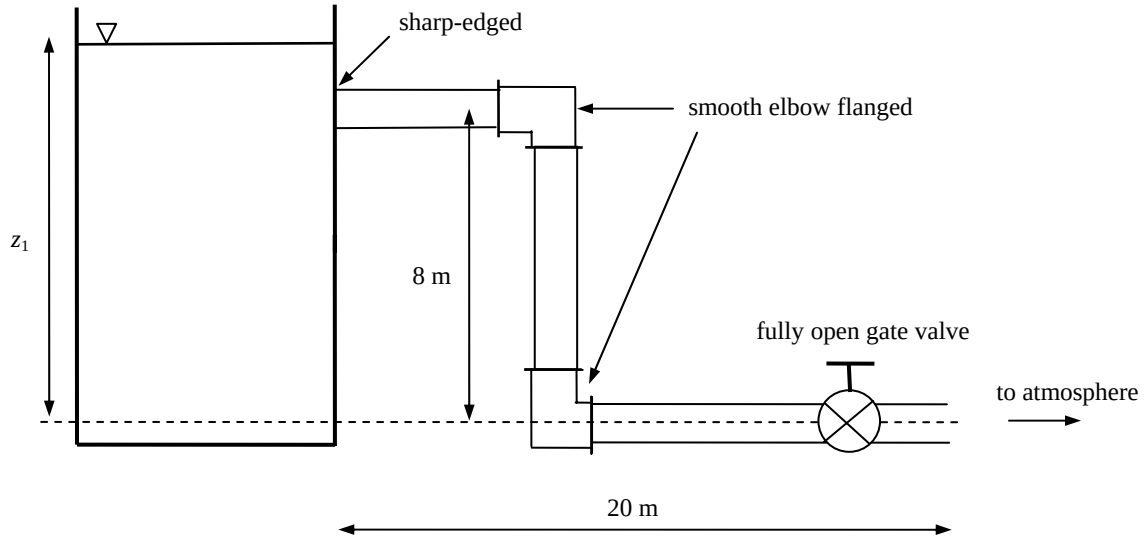
Homework Set #16

Water at 10 ^{o}C flows from a large reservoir as shown through a 5-cm diameter cast iron pipe. Water properties: ρ = 1000 kg/m3, μ = 0.001307 kg/m-s.



a) For a flow rate of 6 L/sec, find the elevation z_1.

b) We wish to DOUBLE the flow by adding a pump in the 5-cm diameter pipe. Assume that the non-dimensional loss coefficients (friction factor, minor loss coefficient) do NOT change, how much pump power is required to deliver the desired flow rate?