Problem 204C

A pump and associated piping (cross-sectional area A^*) are designed to pump water of density, ρ, from one reservoir to another at an elevation, H, above the first (denoted gravity by g). A water volume, V, is to be pumped in time, T, and the loss coefficient in the piping is k. Find:

- (a) the total head rise the pump must produce

- (b) the total work done by the the pump on the water

- (c) the work input that needs to be supplied through the shaft to the pump if the efficiency of the pump is η.