ENSC 388

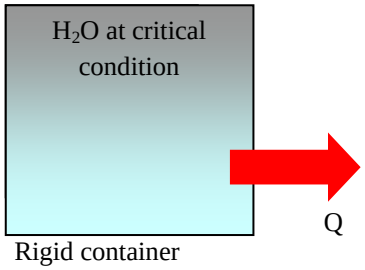
Assignment #2 (Properties of Pure Substances)

Assignment date: Wed Sept. 23, 2009

Due date: Wed Sep. 30, 2009

Problem 1

Water at the critical condition is contained in a rigid container. The system is cooled down until its temperature reaches $T = 25℃$? Calculate specific volume, internal energy, and quality for initial and final states. What would be the pressure of the system at the final state?



Problem 2

R-134a is contained in a piston-cylinder device at $T_1 = -12℃$ and $P_1 = 0.2MPa$. The fluid is heated isobarically such that $V_2 = 20V_1$. Heat is then added at constant volume until the temperature reaches $T_3 = 80℃$.

a) Show the process on a *T*-*v* diagram.

b) Calculate $h_1, h_2 \; and \; h_3$.