

Homework #6 ME/CH EN 2300
Due Wednesday February 21, 2007

1. 3-27 in 6th Edition (3-30 in 5th Edition)
2. 3-28 in 6th Edition (3-31 in 5th Edition)
3. (3-88) Determine the specific volume of superheated water vapor at 10 MPa and 400C using:
 - a) The ideal gas law
 - b) The compressibility chart
 - c) The superheated water tablesAssuming the superheated water tables are the exact value, what is the percent error on a) and b)
4. (4-25) A piston-cylinder device contains 0.15 kg of air initially at 2 MPa and 350 C. The air is first expanded isothermally to 500 kPa, then compressed polytropically with a polytropic exponent of 1.2 to the initial pressure. Finally the fluid is compressed at the constant pressure to the initial state. Determine the boundary work for each process and the net work of the cycle.