AME 20231
Homework 4
Due: Thursday, 4 March 2021, 9:00 AM, on Sakai

1. 3.30, instead let the mass be 1200 kg.
2. 3.40, instead let the mass of liquid water be 1.9 kg.
3. 3.45, instead let the final pressure be 110 kPa.
4. 3.47, instead let the final volume be $V = 5$ m^3.
5. (adopted from BS, 7th edition). Ammonia vapor is compressed inside a cylinder by an external force acting on the piston. The ammonia is initially at 30°C, 500 kPa, and the final pressure is 1400 kPa. The following data have been measured for the process:

Table 1: $P - V$ data for ammonia compression

P (kPa)	V (L)
500	1.25
663	1.07
801	0.92
955	0.82
1140	0.71
1288	0.62
1400	0.50

Determine the work done by the ammonia by an appropriate numerical method to approximate $W = \int P \, dV$.

Include in your submission a professional quality plot of the process in $P - V$ space. Label the axes appropriately, and include a plot of the vapor dome as a part of your plot.