AME 20231
Homework 4
Due: Thursday, 6 February 2020, in class

1. 3.35, instead let the drive shaft rotate at 2000 rpm.

2. 3.40.

3. 3.46, instead let the final pressure be 310 kPa.

4. 3.47, instead let the final volume be $V = 5 \text{ m}^3$.

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 $30°\text{C}$, 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
653	1.08
802	0.96
945	0.84
1100	0.72
1248	0.60
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.