ENGR 240
HW#16

1. Poly(vinyl chloride) repeat unit can be found in Table 15.3. The repeat unit molecular weight is 62.4 g/mol.

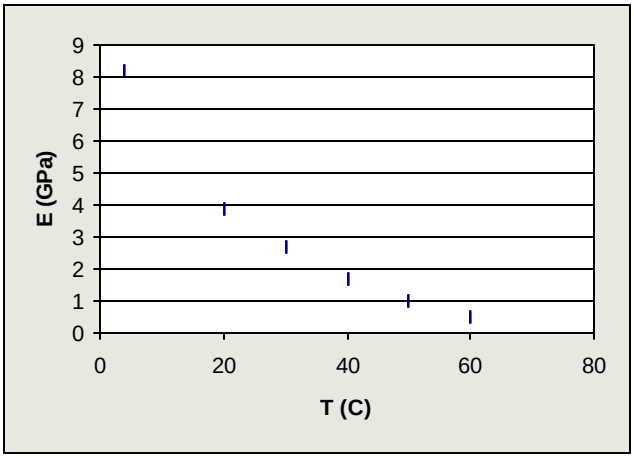
   2600 (62.4) = **162,200 g/mol**

   (neglecting whatever atoms might be at the very ends of the chain, but that won't affect the first 4 significant figures of the result, so we never worry about this when discussing polymers!)

2. 15g/(162,200 g/mol) = 9.2×10^{-5} mol (of chains)

   (9.2×10^{-5} mol)(6.0×10^{-23} chains/mol) = **5.6×10^{19} chains**

3. a) Estimate E (slope of linear stress vs. strain), and note that 1 GPa = 1000 MPa):



   b) compared to E for Al (see text appendix), E poly(methyl methacrylate) **» 18 x smaller**