Please show your work and draw a box around your answer to receive full credit.

1) Consider a propane storage tank shown in Figure 1. You can approximate its structure as a thick-walled spherical pressure vessel shown in Dowling's Figure A.6 (pg. 856). The diameter is 3.5 meters and the wall thickness is 10 cm. The gas inside is at a pressure of 1.22 MPa to keep the propane in liquid form. What is the maximum stress in the storage tank wall? Ignore the mass of the liquid propane.

Figure 1. Propane Storage Tank

2) Samples from batch no. 2007-1 of polycarbonate channels were tested for stiffness, i.e. Young's modulus. The following frequency distribution for stiffness measurements was obtained: 23 samples had 2.480 GPa; 35 samples had 2.440 GPa; 40 samples had 2.400 GPa; 33 samples had 2.360 GPa; and 21 samples had 2.320 GPa. What is the average stiffness and standard deviation for the batch?