1. Solve Problem 7.2-11, page 541 from Gere's book. Establish the Tresca plastic yield condition for the weld.

2. A *closed-end* cylindrical pressure vessel of inner radius a and outer radius b is subject to internal pressure p. The stresses are

$$\sigma_{rr} = -\frac{p}{(b/a)^2 - 1}\left(\frac{b^2}{r^2} - 1\right)$$

$$\sigma_{\theta\theta} = \frac{p}{(b/a)^2 - 1}\left(\frac{b^2}{r^2} - 1\right)$$

$$\sigma_{zz} = \frac{p}{b^2/a^2 - 1}$$

Find the Mises yield condition for the vessel.

3. Let $b = a + t$ where t is the thickness of the spherical pressure vessel/cylindrical pressure vessel.

   Substitute the above relation in stress equations for the spherical (Eq. 6.1 Lecture#8 with $p_e = 0, p_i = p$) and cylindrical pressure vessels (equations in Problem 2 above).

   Then assume that the pressure vessels are *thin-walled*, or $a \gg t$, so that higher order terms of t are negligible. Simplify the stress relations for this case and compare your results with those of Gere (pg. 557-571). Establish the brittle rupture conditions for thin-walled pressure vessels.

4. Solve Problem 8.2-6 in Gere, pg. 599

5. Solve Problem 8.3-7 in Gere, pg. 601

6. Problem 6.2-6, page 465, Gere

7. Problem 6.2-7, page 465, Gere

8. Problem 6.3-6, page 467, Gere