# EME 150A Fall 2016 Homework #06

DUE: Monday, November 14, 2016 before class in Box B in the MAE department.

Problem 1

Given the same problem from homework #2 where the rod radius is 0.75 in, determine the whether the rod will fail at point A under the given loading if the material is cold drawn 1018 carbon steel. If the rod will not fail report the factor of safety. Show results for both the maximum shear stress theory and the distortion energy theory.
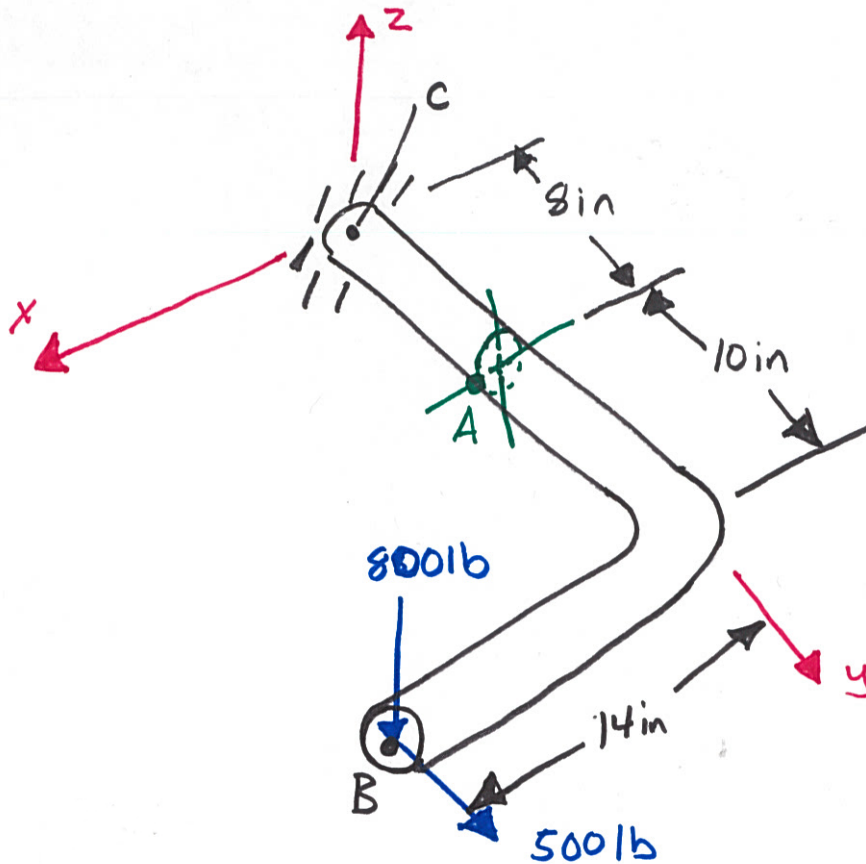
Problem 2

A pressure vessel is made of an aluminum alloy tubing with suitable end closures. This cylinder has a 3.5" in OD and a 0.1875" wall thickness. The material has a tensile yield strength of 46 kpsi and a compressive yield

strength of 60 kpsi. Using the Coulomb-Mohr Theory, determine the factor of safety if the pressure-release valve is set at 2500 psi.