EME 150A Fall 2016 Homework #02

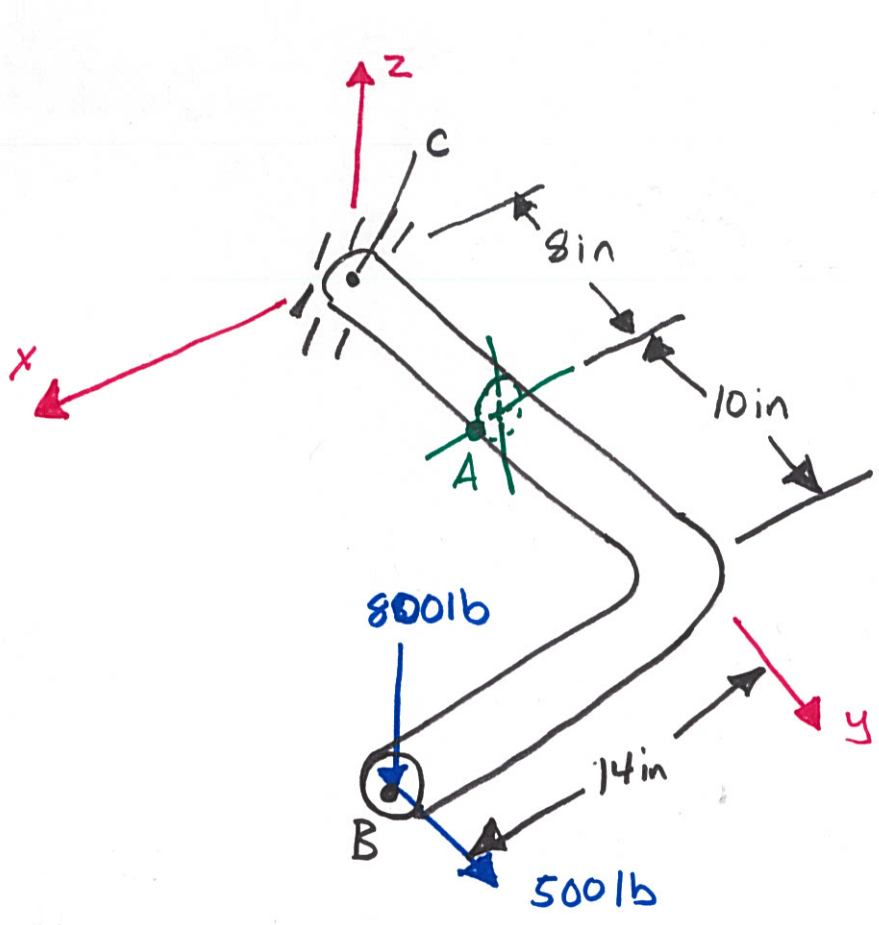
DUE: Monday, October 10, 2016 before class in Box B in the MAE department.

Problem 1

Use singularity functions to find the shear and moment diagrams from Problem 2 from Homework 1.

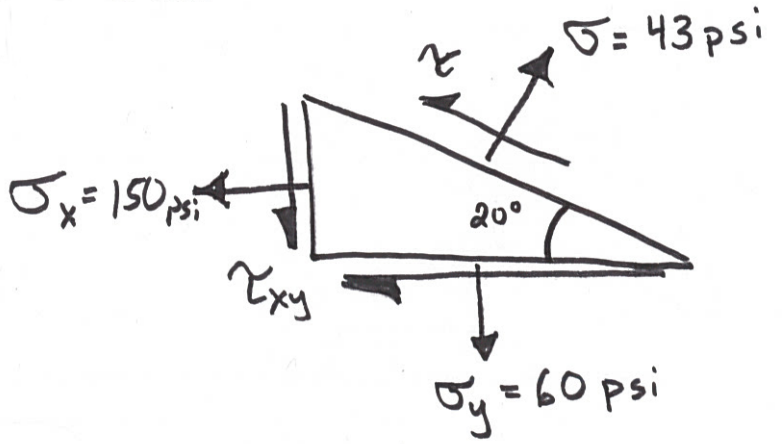
Problem 2

The solid rod shown in the figure is subject to the two loads at point B. The rod has a radius of 0.75 in. Determine the state of stress at point A, sketch the stress cube, and write out the stress tensor with respect to the provided coordinate system.



Problem 3

The normal stresses on threee sides of a triangular element are as indicated. Find the shear stresses, the principal stresses, and the principal directions.



Problem 4

The figure below shows the state of plane stress at a point. Draw the state of stress if the element is rotated counterclockwise 40° relative to the given position. Use Mohr's circle to do the rotation and show the diagram.