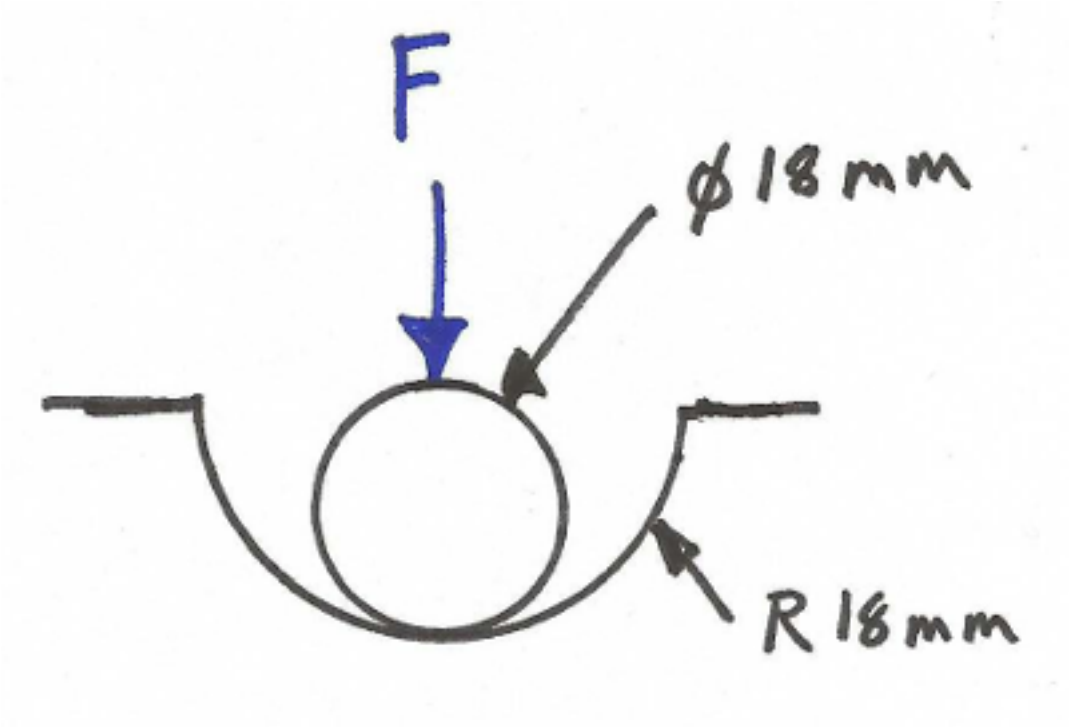
EME 150A Fall 2016 Homework #04

DUE: Monday, October 24, 2016 before class in Box B in the MAE department.

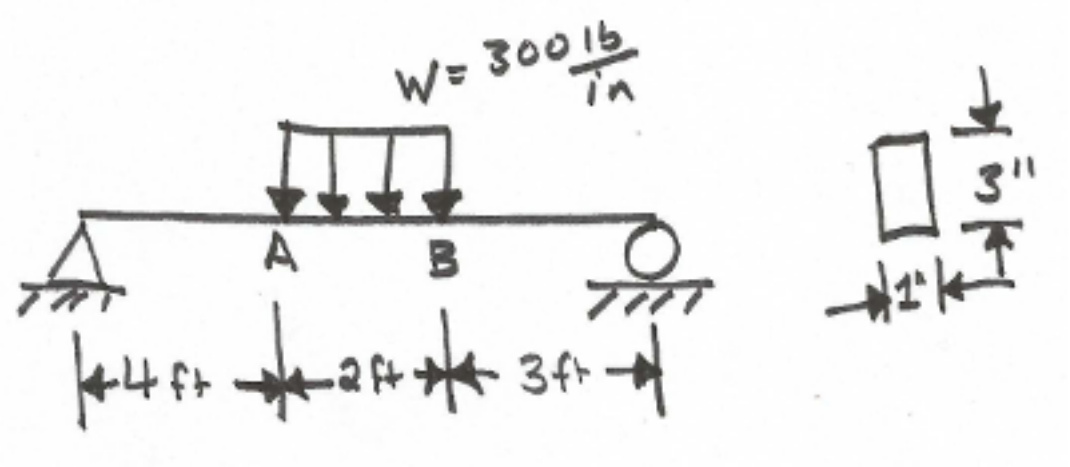
Problem 1

A small spherical ball of brass is pressed into a hemispherical depression with a force $F = 500N$. Determine the principal normal and shear stresses at the location along the z axis corresponding to the highest shear stress. The ball is made of brass and the depression is made of copper.



Problem 2

Find the radius of curvature of the deflected beam at points A and B. The modulus of elasticity is 10 Mpsi.



Problem 3

For the beam and loading shown, find both the slope and deflection at points C and D using two different methods. Additionally, describe the slope between points C and D. Use $l = 1.2\text{m}$, $E = 180\text{GPa}$, $I = 0.23\text{m}^2$, $w = 60\frac{\text{kN}}{\text{m}}$.