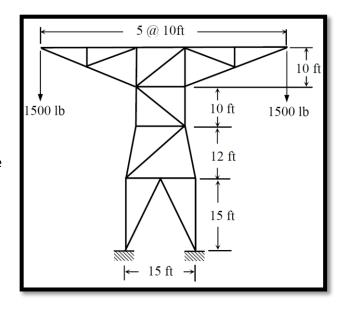# Assignment # 10

A transmission-line tower is shown. The members of the tower are made of steel with E = 30x10$^6$ lb/in2 and A = 12 in$^2$ (Circular Cross Section).



a. Using Python, Matlab, or a similar programing code, write an FEA code to determine the deflections and stresses of the tower under the given loading conditions.

b. Using hand calculations and Truss elements, write the local stiffness matrix for each element, assemble the global stiffness matrix and determine the deflections and stresses of the tower under the given loading conditions.

c. Build the geometry and perform an ANSYS analysis and compare with the results obtained in (a) and (b)

d. Solve the problem again if the load on the left-hand side is increased to 2000 lb.

e. Use beam elements in ANSYS. Comment on your findings.