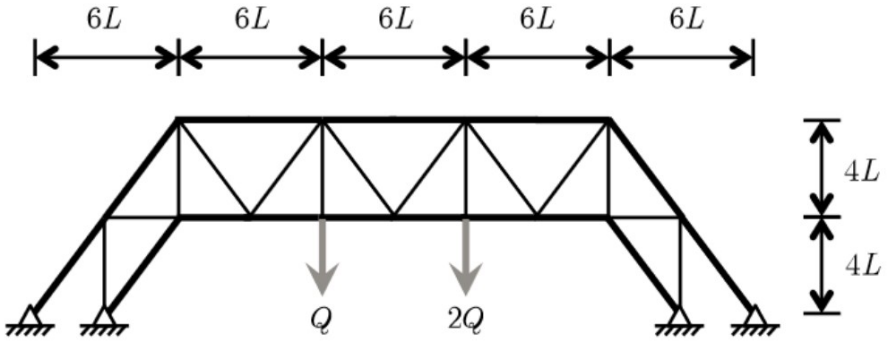
Project 1

Consider the truss shown below subjected to the loads shown on the figure where $Q = 1000$ lbs and $L = 1$ ft. The outer members (indicated by thick lines) have area 16 in^2 and the inner members (indicated by thinner lines) have area 4 in^2. All members are made from steel with modulus of elasticity $E = 30 \times 10^6$ psi. Write a 2D truss MATLAB code and use it to analyze the structure.

Submit your code along with a short and concise report that include the following:

1) The undeformed and deformed shapes of the structure (use a magnification factor where the difference is noticeable).
2) The largest tensile and compressive stresses in the member as well as their locations (label clearly on a separate figure).
3) The reaction forces at the supports (label clearly on a separate figure).



Note: The node and element numbering scheme are provided below. Numbers inside the parenthesis are element numbers and numbers without parenthesis are node numbers.