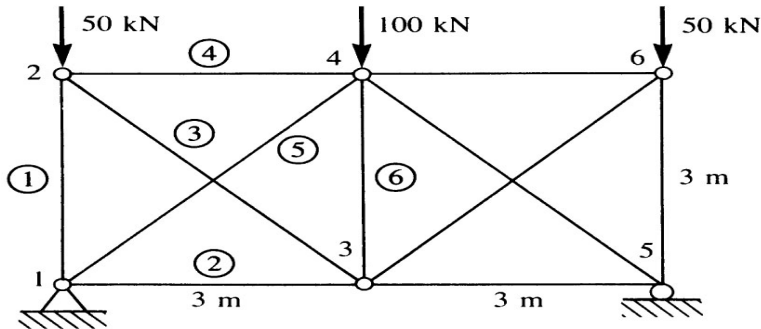


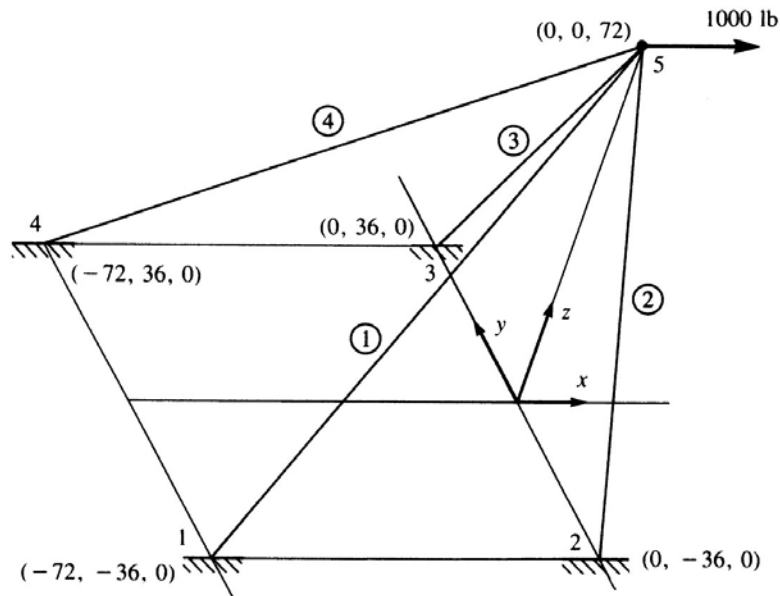
HW 4  
 Design using FEM (EML 4536/5537)  
 Due on: 1 Oct 2004

Using ALGOR analyze the truss. Use symmetry condition. Save your \*.esd, result file and other documents in a floppy disc and submit the assignment for evaluation.



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Area of cross section of members 1, 4 and 6 are  $1200 \text{ mm}^2$   
 Area of cross section of member 2 is  $900 \text{ mm}^2$   
 Area of cross section of members 3 and 5 are  $600 \text{ mm}^2$



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All the coordinates are given in inches.  
 Area of cross section of members 1 and 4 are  $1000 \text{ mm}^2$   
 Area of cross section of members 2 and 3 are  $1600 \text{ mm}^2$

Conduct an initial analysis for forces, stresses and deflection. Design the transmission tower for minimum weight, by limiting stresses in compression members 30000 psi and that of tensile members to 50000 psi, and maximum deflection to 3 inches. Given  $E = 30E6$  psi, minimum area of cross section for a non critical member can be taken as 3 sq. in. Verify the design for any one compression member using Euler's buckling formula.

