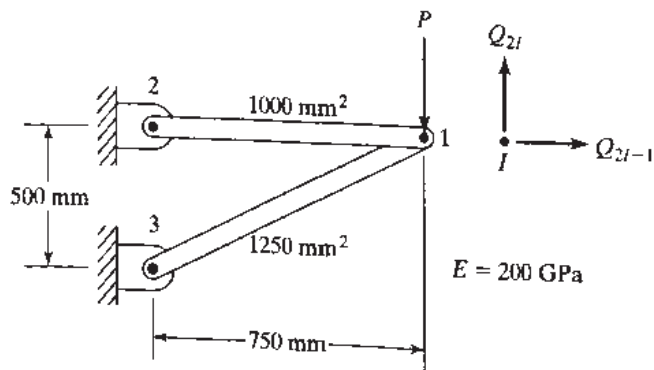
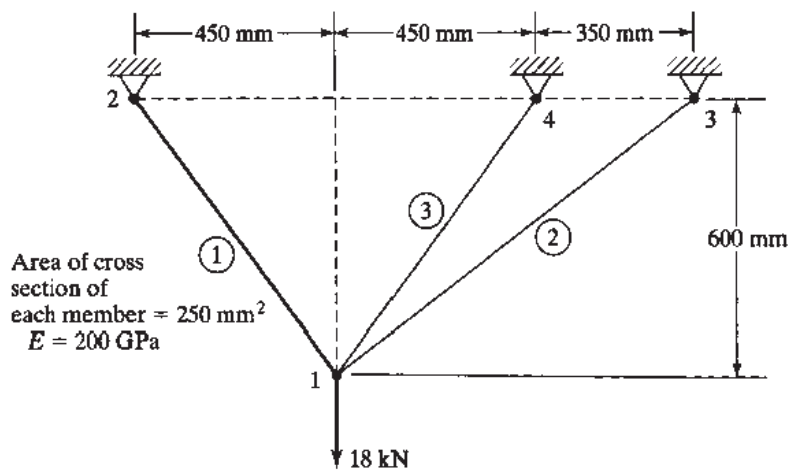


- 4.3. For the pin-jointed configuration shown in Fig. P4.3, determine the stiffness values K_{11} , K_{12} , and K_{22} of the global stiffness matrix.



- 4.7. For the three-bar truss shown in Fig. P4.7, determine the displacements of node 1 and the stress in element 3.



- 4.11.** Determine the nodal displacements and element stresses in the truss in Fig. P4.11, due to each of the following conditions:
- Increase of temperature of 50°F in elements 1, 3, 7, and 8.
 - Elements 9 and 10 are $\frac{1}{4}$ in. too short and element 6 is $\frac{1}{8}$ in. too long, owing to errors in fabrication, and it was necessary to force them into place.

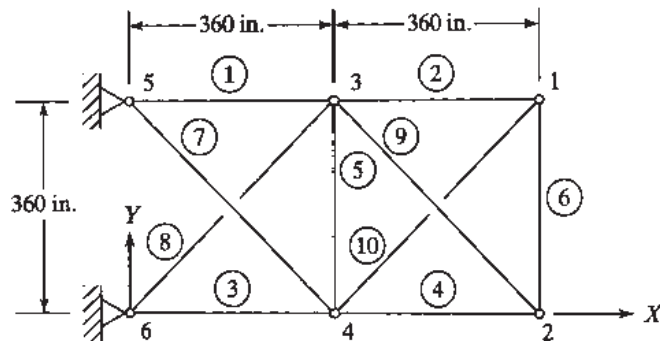


FIGURE P4.11

- Support at node 6 moves 0.12 in. down. Data: Take $E = 30 \times 10^6$ psi, $\alpha = 1/150\,000$ per $^{\circ}\text{F}$. Cross-sectional areas for each element are as follows:

Element	Area (in. ²)
1,3	25
2,4	12
5	1
6	4
7,8,9	17
10	5

- 4.15. Find the deflections at the nodes for the truss configuration shown in Fig. P4.15. Area = 8 in^2 for each member.

