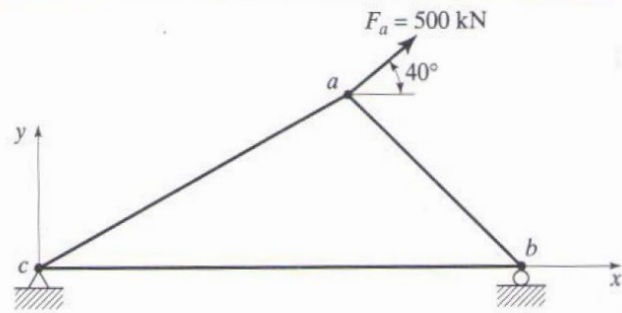


Programming 3

EXAMPLE 3.2

The truss of Example 3.1 is supported and loaded as shown.

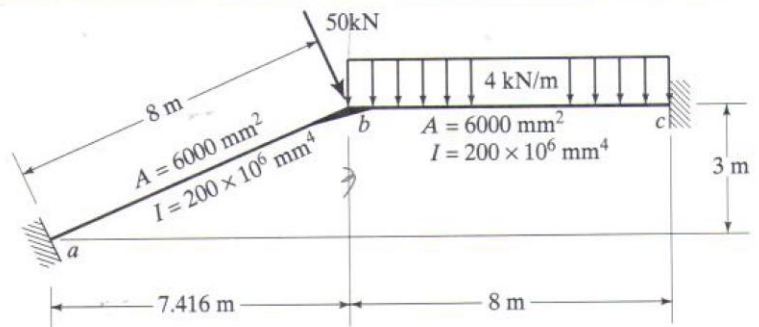
1. Calculate the displacements at a and b .
2. Calculate the reactions.
3. Calculate the bar forces. Use equations of Example 3.1.



EXAMPLE 5.7

The rigid frame shown is made of elements studied in Examples 4.8 and 5.3.

1. Calculate the displacement at b . Include flexural and axial deformation effects.
2. Calculate the reactions.

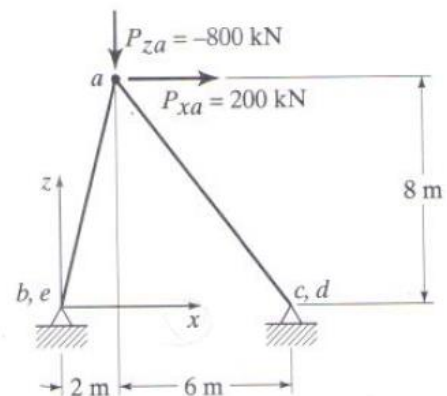
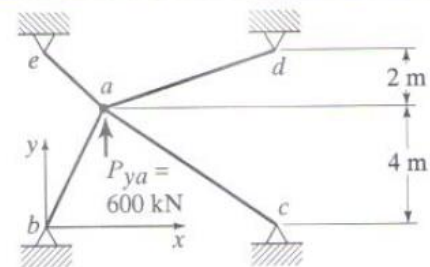


EXAMPLE 5.4

A pin-jointed space truss is supported and loaded as shown. $E = 200,000$ MPa. Bar areas are:

$$\begin{aligned} A_{ab} &= 20 \times 10^3 \text{ mm}^2 \\ A_{ac} &= 30 \times 10^3 \text{ mm}^2 \\ A_{ad} &= 40 \times 10^3 \text{ mm}^2 \\ A_{ae} &= 30 \times 10^3 \text{ mm}^2 \end{aligned}$$

1. Calculate the displacement at a .
2. Calculate the reactions.



Problem 5.10

Members ab, cd

$$A = 12,000 \text{ mm}^2$$

$$I_x = I_y = 300 \times 10^6 \text{ mm}^4$$

$$J = 500 \times 10^6 \text{ mm}^4$$

Members bc $A = 20,000 \text{ mm}^2$

$$I_x = I_y = 500 \times 10^6 \text{ mm}^4$$

$$J = 900 \times 10^6 \text{ mm}^4$$

$$E = 200,000 \text{ MPa}$$

