

Flambement - complément à l'exemple 11.7  
(nouvelle édition, p. 352)

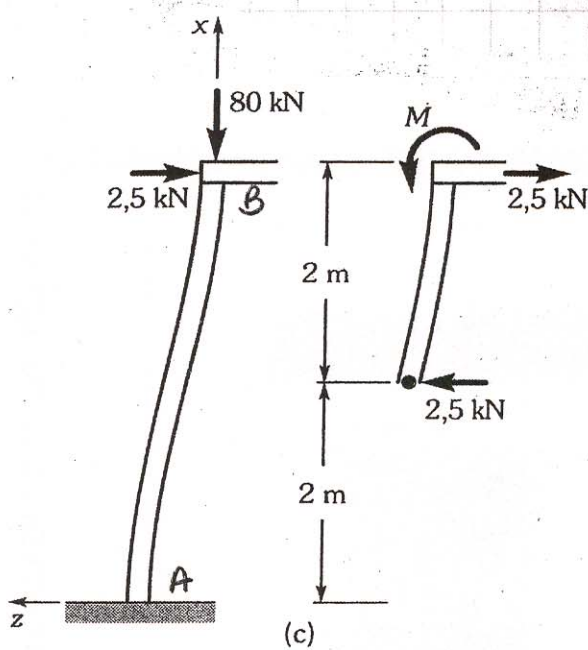
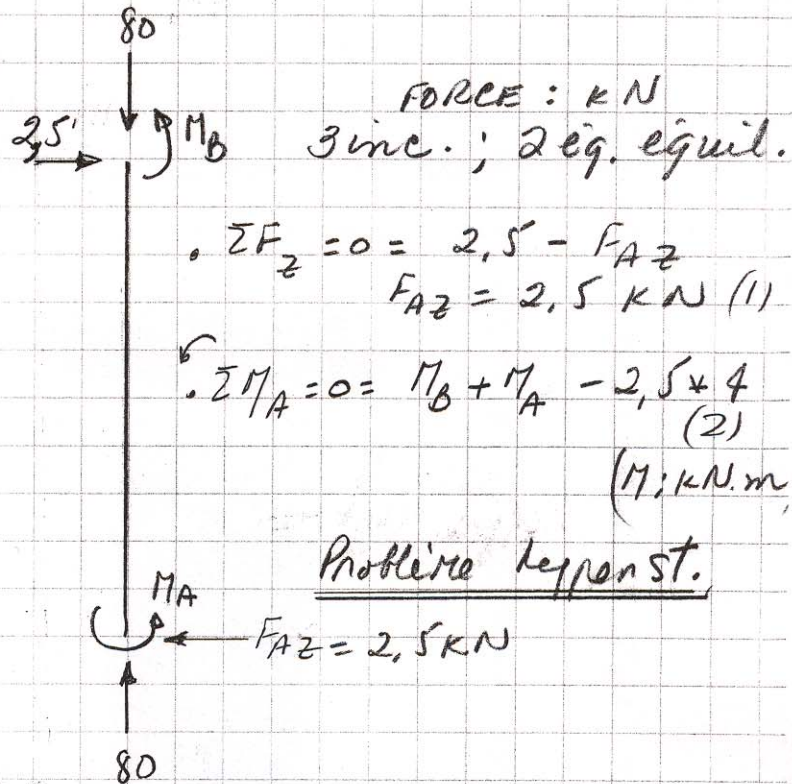
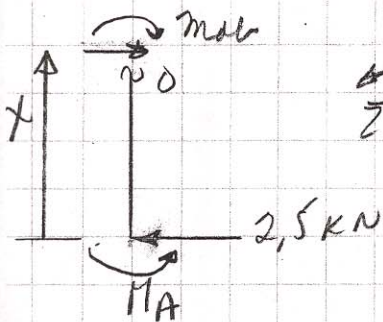


Figure 11.30 Exemple 11.7.



$$\theta_A = 0 = \frac{d\psi}{dM_A} = \frac{1}{EI} \int_0^{L_{AB}} m_{ab} \frac{dm_{ab}}{dM_A} dx$$



$$\sum M_0 = 0 = -m_{ab} - 2.5 \times 4 + M_A = 0$$

$$m_{ab} = M_A - 2.5 \times 4$$

$$\theta_A = \frac{d\psi}{dM_A} = 0 = \frac{1}{EI} \int (M_A - 2.5 \times 4) (1) dx$$

$$0 = \frac{1}{EI} \left[ M_A L - \frac{2.5 L^2}{2} \right] \Rightarrow M_A = \frac{2.5 L}{2}$$

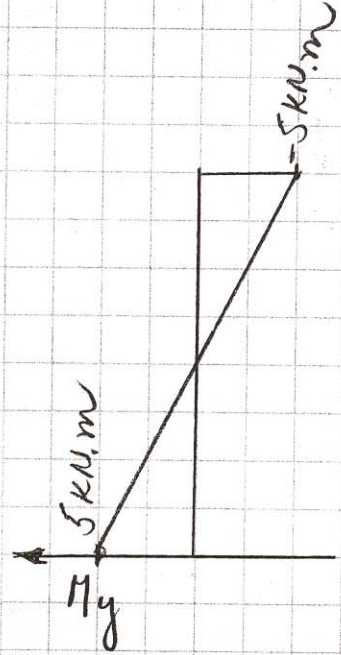
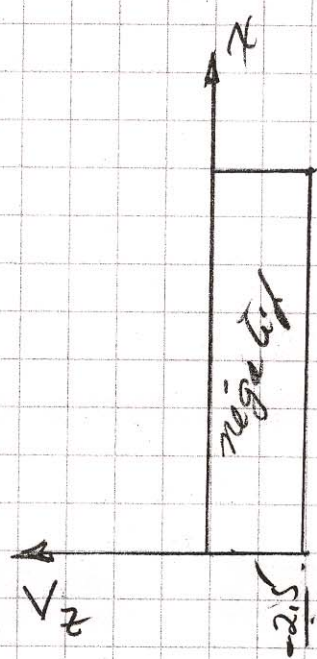
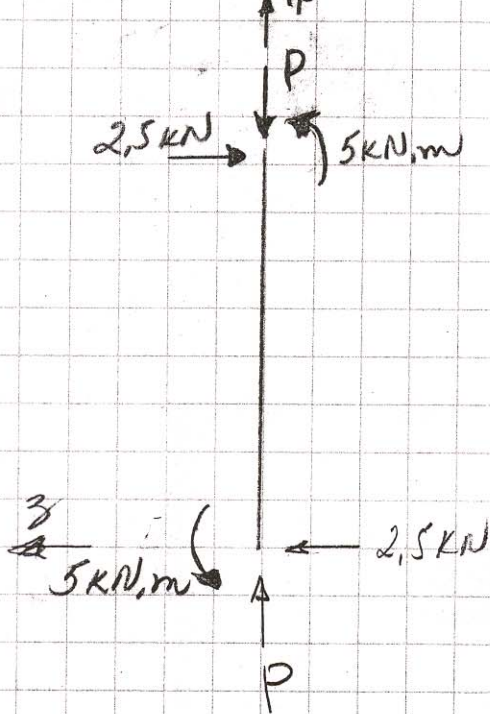
$$\text{où } L = 4 \text{ m} \Rightarrow M_A = 5 \text{ kN.m}$$

(sens monté)

éqn (3) ds éqn (2)  $\Rightarrow$

$$M_B = (10 - M_A) \text{ kN.m} = 5 \text{ kN.m}$$

(sens monté)



Remarque : dans le plan  $x-z$  :

$$\frac{dV}{dz} = -q \quad ; \quad \frac{dM}{dz} = V$$

(voir chap. 17)

ici,  $M_A$  est positif car  
selon l'axe  $y$  nég. sur la  
face  $x$  négative.