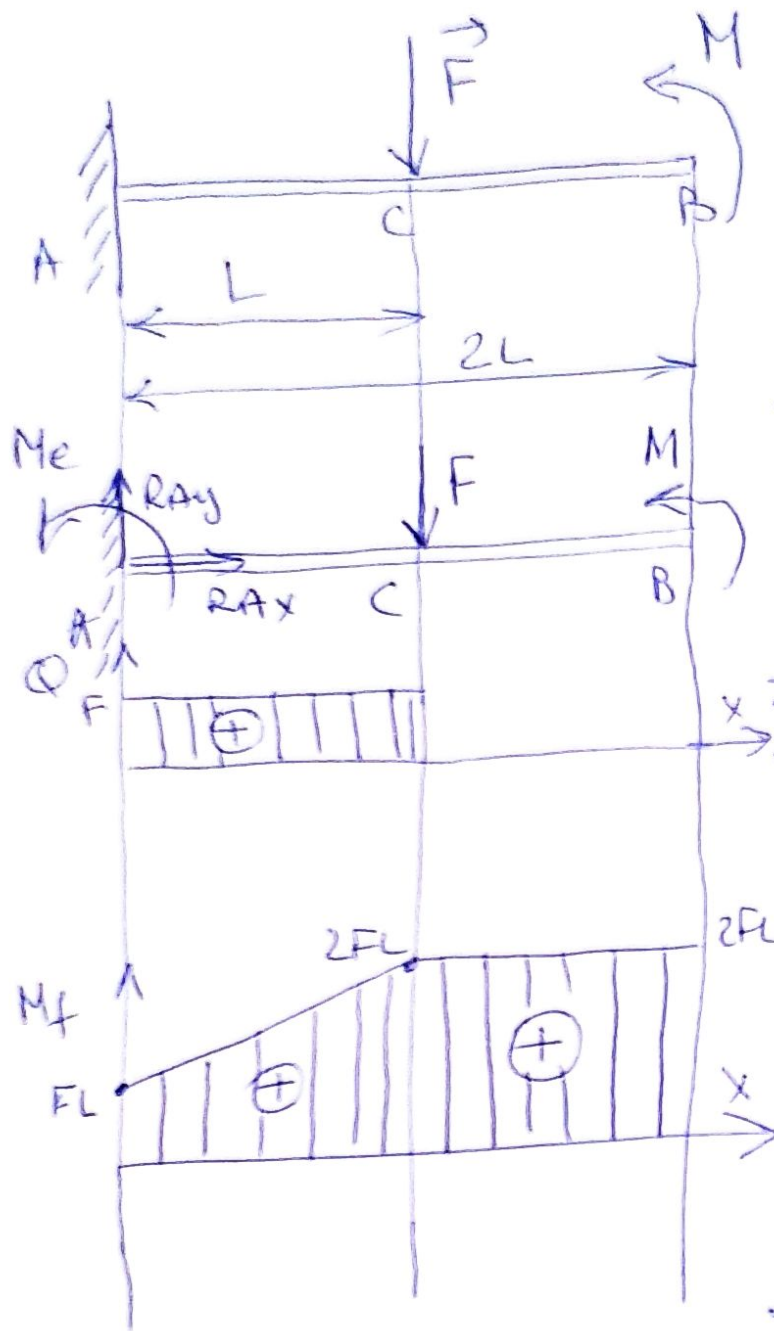


Solution de l'exercice N° 5 de la série 5.1.
(flexion).



Détermination des Réactions au pt A.

$$\sum F_{ext/y} = 0 \Rightarrow$$

$$R_{Ay} - F = 0 \Rightarrow$$

$$R_{Ay} = F.$$

$$\sum M/A = 0 \Rightarrow$$

$$M_e - FL + M = 0.$$

$$M_e = FL - M$$

$$M_e = FL - \frac{2F \cdot L^2}{L} = -FL.$$

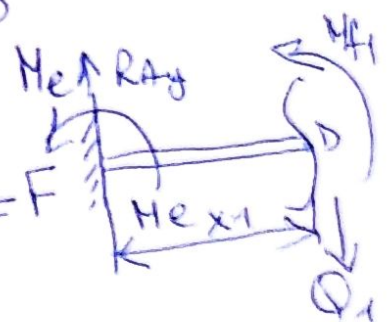
$$M_e = -FL.$$

Tronçon I $0 \leq x_1 \leq L$

$$\sum F_{ext/y} = 0 \Rightarrow$$

$$R_{Ay} - Q_1 = 0$$

$$R_{Ay} = Q_1 = F$$



$$\sum M/D = 0 \Rightarrow M_{f1} - R_{Ay} \cdot x_1 + M_e = 0.$$

$$M_{f1} = R_{Ay} \cdot x_1 - M_e.$$

pour $x_1 = 0$ $M_{f1} = -M_e = FL.$

$x_1 = L$ $M_{f1} = F \cdot L + FL = 2FL.$

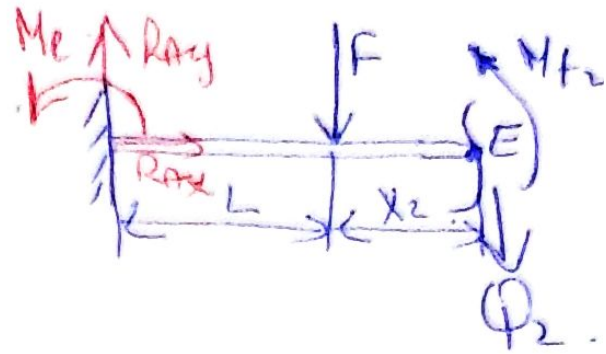
Trouçon II

$$0 \leq x_2 \leq L.$$

$$\sum F_{ext/y} = 0 \Rightarrow R_{Ay} - F - Q_2 = 0$$

$$Q_2 = R_{Ay} - F.$$

$$Q_2 = F - F = 0.$$



$$\sum M/E = 0 \Rightarrow -R_{Ay}(L + x_2) + Fx_2 + M_{f2} + M_e = 0$$

$$M_{f2} = R_{Ay}(L + x_2) - Fx_2 - M_e$$

$$\text{pour } x_2 = 0 \Rightarrow M_{f2} = R_{Ay} \cdot L - F \cdot L = 2FL$$

$$x_2 = L \Rightarrow M_{f2} = R_{Ay}(L + L) - F \cdot L - F \cdot L$$

$$M_{f2} = 2FL - FL - FL$$

$$M_{f2} = 2FL$$

Cisaillement pur ($M_f = 0$ et $Q \neq 0$) ^{pas de} ~~pas de~~ ~~Cisaillement Pur~~

flexion pur ($M_f \neq 0$ et $Q = 0$) pour
 x_1 compris entre L et $2L$.