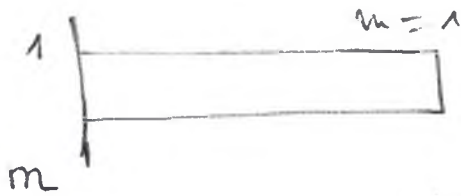
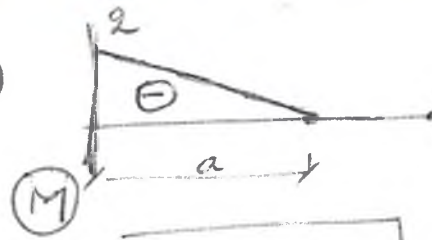


Exercice n° 1 : (6 pts)

Tronçon 1 : $M = P(x-a)$

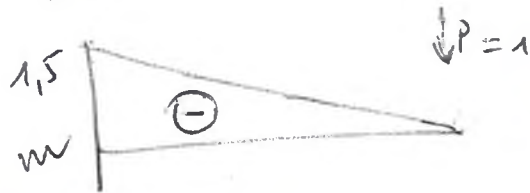
Tronçon 2 : $M = 0$



1 pt

$$\omega_B = \frac{1}{EI}$$

1,5 pt



1 pt

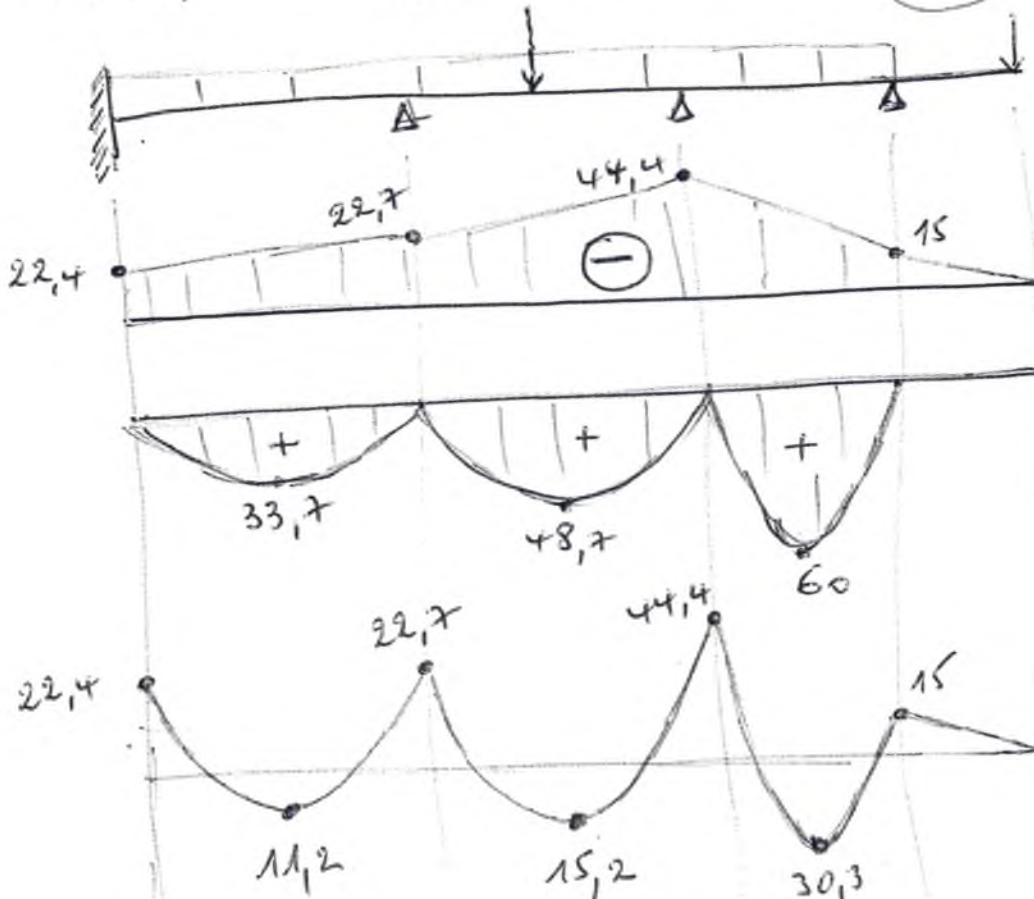
$$\delta_B = \frac{7}{6EI}$$

1,5 pt

Exercice n° 2 : (14 pts)

$$\begin{cases} 2M_0 + M_1 = -67,5 \\ M_0 + 4M_1 + M_2 = -157,5 \\ 3M_1 + 14M_2 = -690 \end{cases}$$

1 pt
1 pt
1 pt



M appuis
1 pt

M ext
1 pt

Superposition
(kNm)
1 pt

1/2

Efforts tranchés



Travée 1 : $T_y = R_0 - 30x$ $\left\{ \begin{array}{l} T_0 = 44,9 \text{ kN} \\ T_1 = -45,1 \text{ kN} \end{array} \right.$

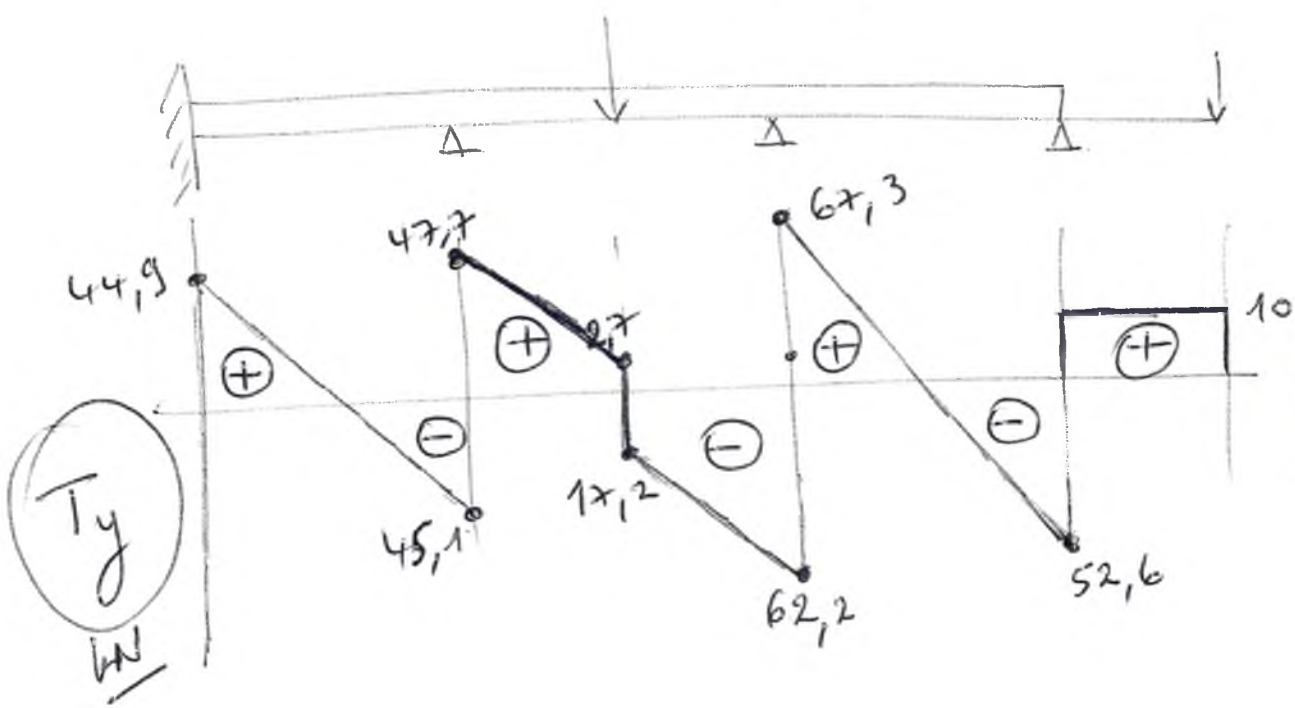
1 pt

Travée 2 : $T_y = R_1 - 30x$ $\left\{ \begin{array}{l} T_y = 47,7 \text{ kN} \text{ (à } x=0) \\ T_y = 2,7 \text{ kN} \text{ (à } x=1,5\text{m)} \end{array} \right.$
 $T_y = 30x - R_2$ $\left\{ \begin{array}{l} T_y = -62,2 \text{ (à } x=3\text{m)} \\ T_y = -17,2 \text{ (à } x=1,5\text{m)} \end{array} \right.$

1 pt

Travée 3 : $T_y = R_2' - 30x$ $\left\{ \begin{array}{l} T_y = 67,3 \text{ (à } x=0) \\ T_y = -52,6 \text{ (à } x=4\text{m)} \end{array} \right.$

1 pt



3 pts

Les Réactions aux appuis :

$$\left\{ \begin{array}{l} R_0 = 44,9 \text{ kN} \\ R_1 = 92,8 \text{ kN} \\ R_2 = 129,6 \text{ kN} \\ R_3 = 62,6 \text{ kN} \end{array} \right.$$

2 pts