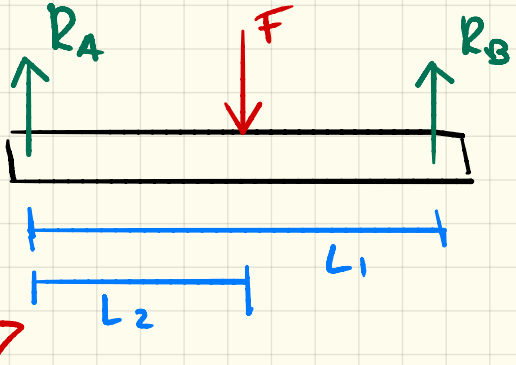
Wiskunde 3 - Practicum

Opgelegde balk



Variabelen:

- $F = ?$
- $L_1 = ?$
- $L_2 = ?$

Parametrisch oplossen.

Stap 1: Reactie krachten bepalen

$\Sigma F_y = 0 \rightarrow R_A + R_B - F = 0$

$\Sigma M_A = 0 \rightarrow -F \cdot L_2 + R_B \cdot L_1 = 0$

$\rightarrow R_B = F \cdot \frac{L_2}{L_1}$

$\rightarrow R_A = F - R_B = F \cdot (1 - \frac{L_2}{L_1})$

optie 1: Balans

optie 2: Matrix

Matrix opstellen

$1 \cdot R_A + 1 \cdot R_B = F \cdot 1$

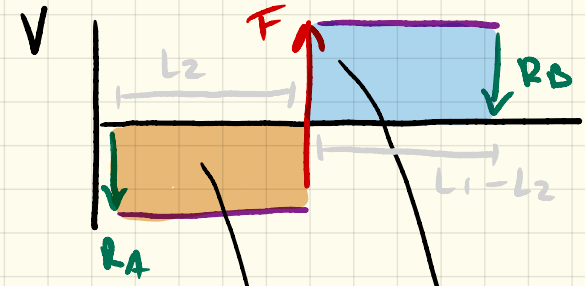
$0 \cdot R_A + L_1 \cdot R_B = F \cdot L_2$

$\rightarrow \left[\begin{array}{cc|c} 1 & 1 & F \\ 0 & L_1 & F \cdot L_2 \end{array}\right]$

deze zoeken we.

Resultaat: $R_A = (\ldots)$, $R_B = (\ldots)$

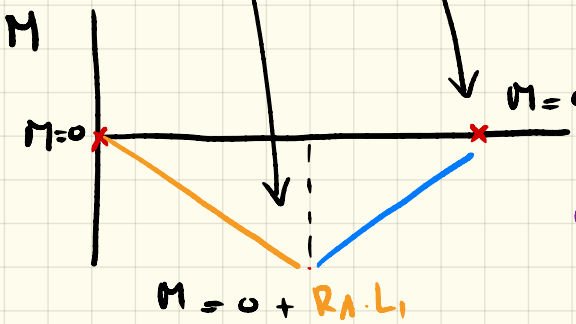
Stap 2: Berekenen V en M lijn



actie = -reactie

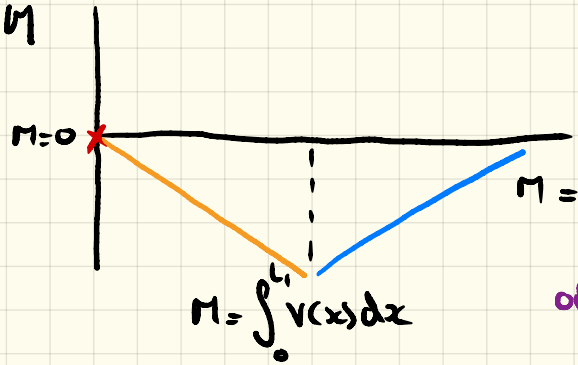
$V(x) = -R_A \quad 0 \geq x > L_2$

$V(x) = R_B \quad L_2 \geq x > L_1-L_2$



optie 1: oppervlakte methode

$M = 0 + R_A \cdot L_1$



optie 2: Integreren