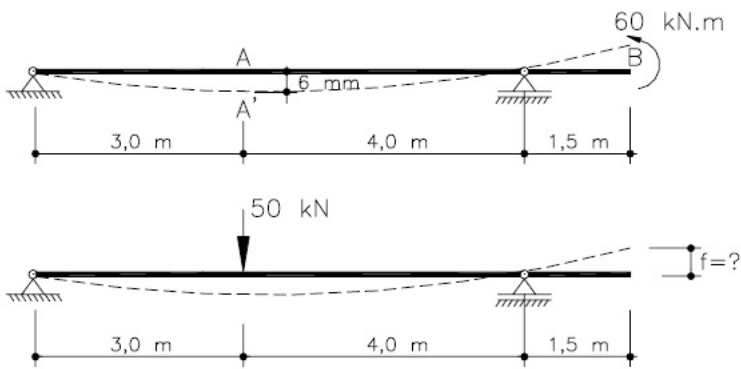


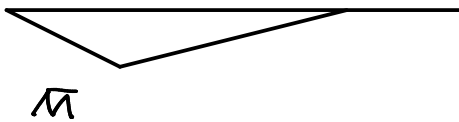
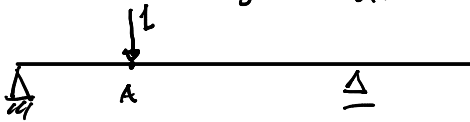
3) A estrutura da figura, quando solicitada por um momento fletor de 60 kN.m no ponto B, apresenta no ponto A uma flecha de 6 mm. Calcular a flecha no ponto B quando se aplica no ponto A uma carga de 50 kN.



RESPOSTA: $f = 0,75$ cm.

PTV:
Primeira situação.

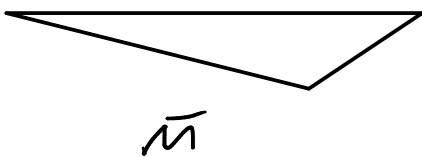
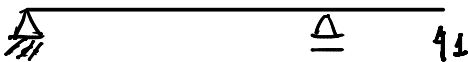
Carga unitária em A:



$$6 \cdot 10^{-3} = \int_L \frac{M \bar{M}}{EI} dL \rightarrow EI = \frac{1}{6 \cdot 10^{-3}} \int M \bar{M} dL$$

2ª situação:

Carga unitária:

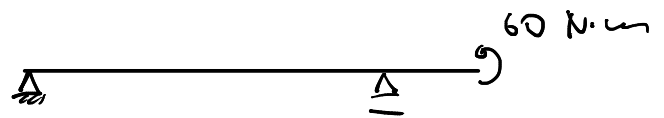


$$f = \int \frac{M \bar{M}}{EI} dL$$

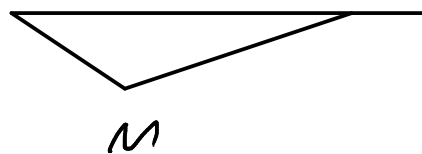
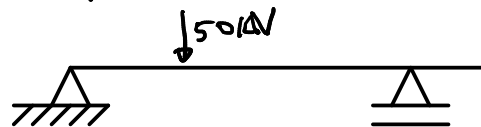
Dicas:

O seu problema está na segunda figura, mas para resolver você precisa analisar a 1ª figura para encontrar EI.

Carga Real:



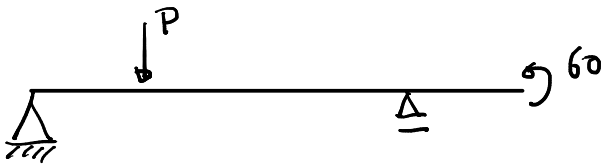
Real:



CASTIGLIANO:

1ª Situação:

Carregamento Real + carga auxiliar:



$$6 \cdot 10^3 = \frac{\partial}{\partial P} \int_L \frac{M^2}{2EI} dL$$

$$6 \cdot 10^3 = \frac{1}{2EI} \int_L \frac{\partial M^2}{\partial P} dL$$

$$6 \cdot 10^3 = \frac{1}{2EI} \int_L 2M \frac{\partial M}{\partial P} dL$$

$$EI = \frac{1}{6 \cdot 10^3} \int_L M \frac{\partial M}{\partial P} dL$$

2ª Situação:



$$EI = \frac{1}{EI} \int_L M \frac{\partial M}{\partial P} dL$$