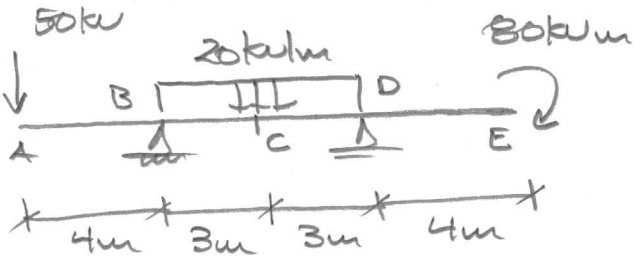
B2 T4 MA 06 18 — 0,8 PONTOS

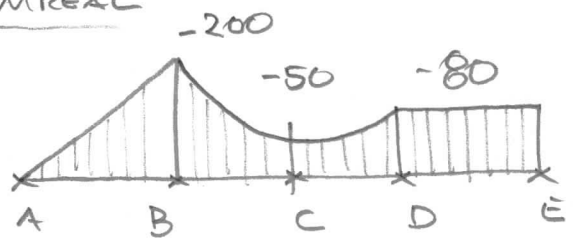
PARA TODAS AS BARRAS:
$E = 30\,GPa$ $b = 12cm$ $h = 60cm$



CONSIDERANDO SOMENTE EFEITOS DE FLEXÃO

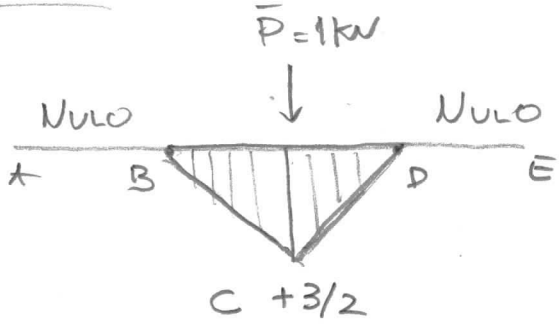
a) δ_C b) δ_E

M_{REAL}

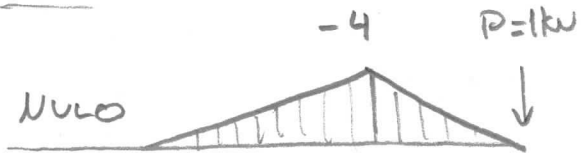


$$-\frac{-200-80}{2} + 20\times 6^2/8 = -50$$

$\bar{M}\,\delta_C$



$\bar{M}\,\delta_E$



$EI = 30\times10^6 \times 0{,}12 \times 0{,}6^3/12$

$EI = 64800\ kN.m^2$

$$\delta_C = \frac{1}{EI}\left[\frac{1}{6}\times 6\times\frac{3}{2}\left[-200.0{,}5 + 2(-50) + (-80).0{,}5 - 0{,}5.0{,}5\,(-200 - 2(-50) - 80)\right]\right] = \frac{-2925}{64800} = -4{,}5139\times10^{-3}\,m$$

$\delta_C = +4{,}5139\ mm \uparrow$

$$\delta_E = \frac{1}{EI}\left[\frac{1}{2}\times 4m\times(-80)(-4) + \frac{1}{6}\,6m\,(-4)\left(2\times(-50) - 80\right)\right]$$

$$= \frac{1360}{64800} = 0{,}020987m$$

$\delta_E = -20{,}987\ mm \downarrow$