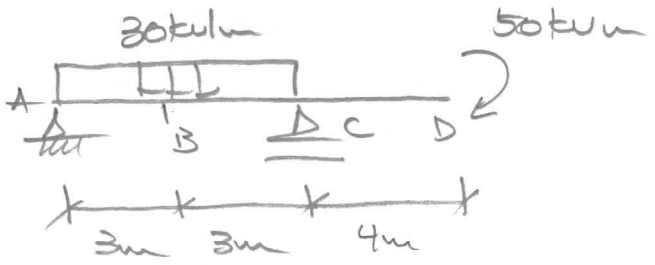
B2T4MB0606 0,8 PONTOS $E = 20\,GPa$ $b = 20\,cm$ $h = 60\,cm$



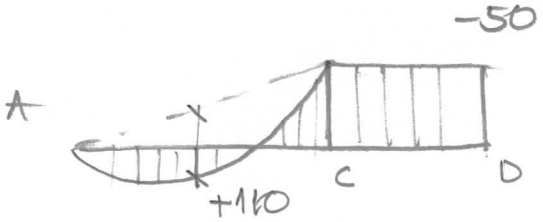
CALCULAR:

Q01) DEFLEXÃO EM B;

Q02) DEFLEXÃO EM D;

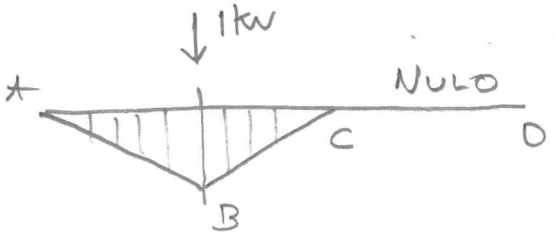
- EM "mm" E COM POSITIVO P/ CIMA

MREAL



$$\frac{-50+0}{2} + 30 \times \frac{6^2}{8} = 110\,kNm$$

MVIRTUAL δ_B



$$\frac{Pab}{L} = \frac{1 \times 3 \times 3}{6} = \frac{9}{6}\,kNm$$

$$EI = 20 \times 10^6 \times \frac{0{,}2 \times 0{,}6^3}{12}$$

$$EI = 72000\,kNm^2$$

MVIRTUAL δ_D



$$\delta_B = \frac{1}{EI}\,\frac{1}{6}\,LK\left[j_1 b + 2j_2 + j_3 a - ab(j_1 - 2j_2 + j_3)\right]$$

$$= \frac{1}{EI}\,\frac{1}{6}\,6\,\frac{9}{6}\left[0 + 2.110 + (-50)\,0{,}5 - 0{,}5 \times 0{,}5\,(0 - 2 \times 110 - 50)\right]$$

$$\delta_B = \frac{1}{EI}\,393{,}75 = \frac{393{,}75}{72000} = 0{,}0054688\,m$$

$\boxed{Q01}$ $\delta_B = -5{,}4688\,mm$ //

$$\delta_D = \frac{1}{EI}\left(\frac{1}{2} \times 4 \times (-4) \times (-50) + \frac{1}{6}\,6(-4)(2 \times 110 - 50)\right) = -280$$

$$\delta_D = \frac{-280}{72000} = -3{,}8333 \times 10^{-3}$$ Q02 $\delta_D = +3{,}8333\,mm$ //