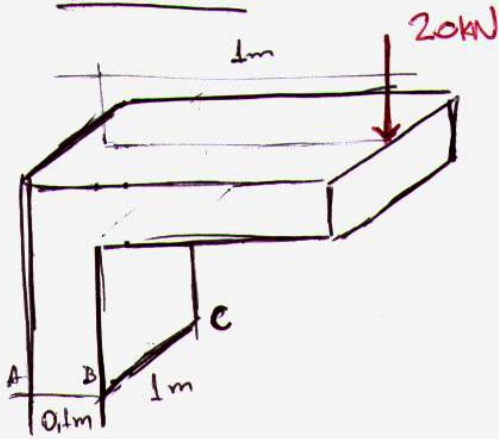
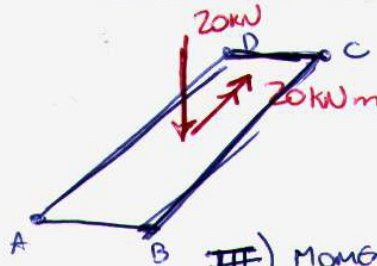


EXERCÍCIO



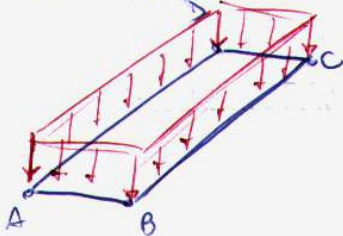
QUAL A DISTRIBUIÇÃO DE TENSÕES NORMAIS EM ABCD

I) CARGAS INTERNAS



II) TENSÃO NORMAL

$$\sigma = \frac{P}{A} = \frac{20.000}{1.0,1} = 200 \text{ kPa}$$

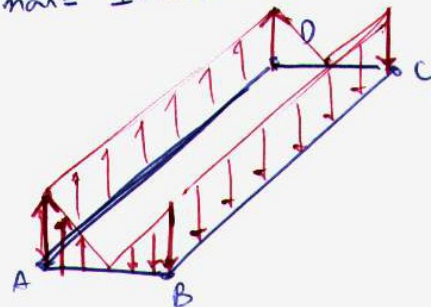


III) MOMENTO FLETOR

$$\sigma_{max} = \frac{M \cdot k}{I} = \frac{M \cdot k}{\frac{12}{b \cdot h^3}}$$

$$\sigma_{max} = \frac{6 \cdot M}{b \cdot h^2} = \frac{6 \cdot 20.000}{1 \cdot (0,1)^2} = 12 \text{ MPa}$$

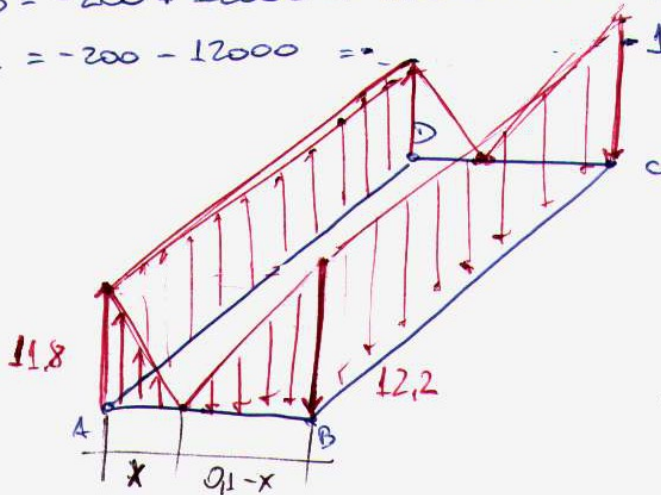
$$\sigma_{max} = 12000 \text{ kPa}$$



IV) COMPOSIÇÃO DOS EFEITOS

$$\sigma_A = \sigma_D = -200 + 12000 = 11800 \text{ kPa} = 11,8 \text{ MPa}$$

$$\sigma_B = \sigma_C = -200 - 12000 = -12200 \text{ kPa} = -12,2 \text{ MPa}$$



I) LINHA NEUTRA

$$\frac{11,8}{x} = \frac{12,2}{(0,1-x)} = 11,8 - 11,8x = 12,2x$$

$$\Rightarrow 24x = 1,18 \Rightarrow x = 0,0492 \text{ m}$$