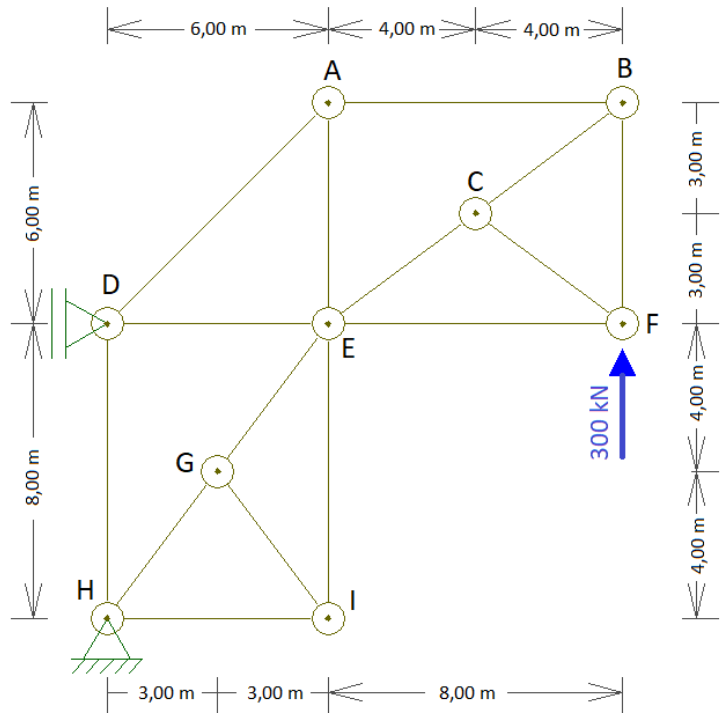


Nº USP: _____ Nome: _____

2ª. Questão (3 pts)

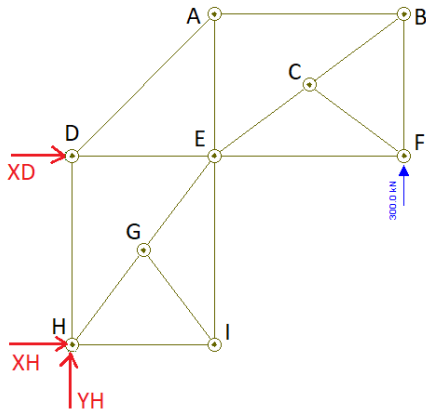
Para a treliça da figura, calcule:

- As reações de apoio
- A força normal na barra CF
- A força normal na barra CE
- A força normal na barra AE



Resolução

a)

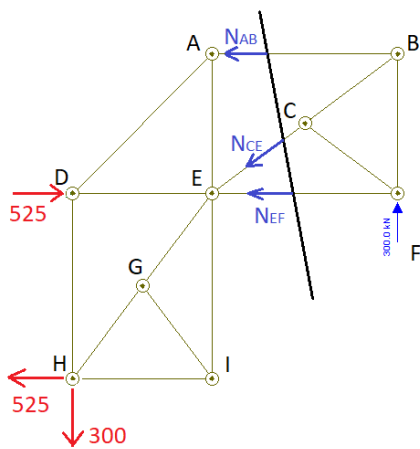


$$\Sigma Y = 0 \quad Y_H + 300 = 0 \quad \boxed{Y_H = -300 \text{ kN}}$$

$$\Sigma M_H = 0 \quad -X_D * 8 + 300 * 14 = 0 \quad \boxed{X_D = 525 \text{ kN}}$$

$$\Sigma X = 0 \quad X_D + X_H = 0 \quad \boxed{X_H = -525 \text{ kN}}$$

c)

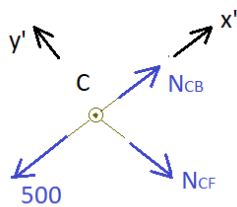


$$\Sigma Y = 0 \quad -N_{CE} * 0,6 + 300 = 0 \quad \boxed{N_{CE} = 500 \text{ kN}}$$

$$\Sigma M_E = 0 \quad N_{AB} * 6 + 300 * 8 = 0 \quad N_{AB} = -400 \text{ kN}$$

$$\Sigma X = 0 \quad -N_{AB} - N_{CE} * 0,8 - N_{EF} = 0 \quad N_{EF} = 0$$

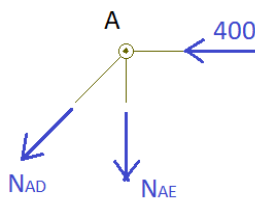
b)



$$\Sigma y' = 0 \quad \boxed{N_{CF} = 0}$$

$$\Sigma x' = 0 \quad N_{CB} = 500 \text{ kN}$$

d)



$$\Sigma X = 0 \quad -N_{AD} * 0,707 - 400 = 0 \quad N_{AD} = -565,7 \text{ kN}$$

$$\Sigma Y = 0 \quad -N_{AE} - N_{AD} * 0,707 = 0 \quad \boxed{N_{AE} = 400 \text{ kN}}$$