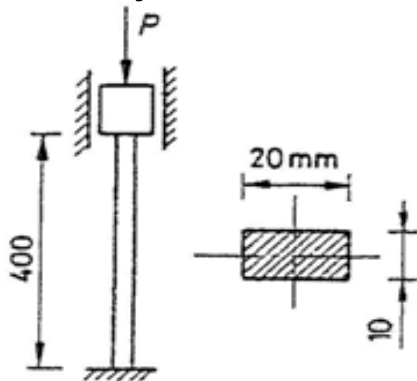


TMKS0600 STATIIKKA JA LUJUUSOPPI

Tehtävä L5-7

Määritä nurjahduskuormat



$$E = 200 \text{ GPa}$$

$$B = 20 \text{ mm}$$

$$L = 400 \text{ mm}$$

$$H = 10 \text{ mm}$$

$$L_n = L/2 = 200 \text{ mm}$$

$$F_n = \pi^2 E_T I_T / L_n^2$$

$$F_{na} = 82247 \text{ N}$$

$$I = BH^3/12$$

$$I = 1666,666667 \text{ mm}^4$$

Tarkistus:

$$L_n = 200 \text{ mm}$$

$$\lambda = L_n/i = 69,28 < \lambda_{\min}, \text{ ei nurjahda Eulerin mukaisesti}$$

$$i = (I/A)^{1/2} = 2,8868 \text{ mm}$$

$$I = BH^3/12 = 1666,7 \text{ mm}^4$$

$$A = 200 \text{ mm}^2$$

$$\lambda_{\min} = 105 \text{ taulukosta}$$