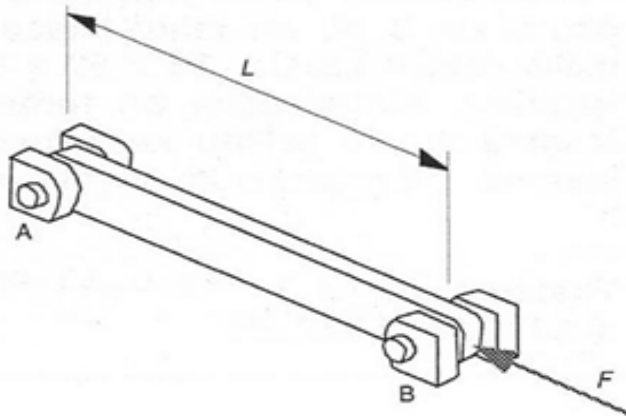


TMKS0600 STATIIKKA JA LUJUUSOPPI

Tehtävä 5-4:

Määritä suurin sallittu voima.



$$E = 70 \text{ GPa}$$

$$B = 16 \text{ mm}$$

$$n = 2,8$$

$$\mu_1 = 1$$

$$I_1 = BH^3/12$$

$$I_2 = HB^3/12$$

$$F_n = \mu \pi^2 EI / L^2$$

$$F_{n1} = 17272 \text{ N}$$

$$F_{n2} = 19651 \text{ N}$$

$$H = 30 \text{ mm}$$

$$L = 1200 \text{ mm}$$

$$\mu_2 = 4$$

$$I_1 = 36000 \text{ mm}^4$$

$$I_2 = 10240 \text{ mm}^4$$

Sallitut sauvakuormat F_n/n

$$F_1 = 6169 \text{ N}$$

$$L_n = 1200 \text{ mm}$$

$$\lambda = L_n/i = 138,56 > \lambda_{\min},$$

$$i = (I/A)^{1/2} = 8,6603 \text{ mm}$$

$$A = 480 \text{ mm}^2$$

$$\lambda_{\min} =$$

$$L_n = 600 \text{ mm}$$

$$\lambda = L_n/i = 129,90 > \lambda_{\min},$$

$$i = (I/A)^{1/2} = 4,6188 \text{ mm}$$

$$A = 480 \text{ mm}^2$$

$$\lambda_{\min} =$$