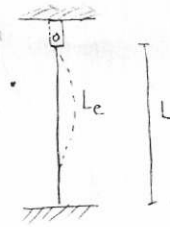


amen

0,75
1) Para las condiciones
 $L_e = 0.7 L$ (0.5)
 $L_e = 210 \text{ mm}$



0,75
Radio de giro sección transversal \square
 $r = \frac{b}{\sqrt{12}} = \frac{12}{\sqrt{12}} = 3.46 \text{ mm}$ (0.5)

0,75
Razón de esbeltez (RE)
 $RE = \frac{L_e}{r} = 60.7$ (0.5)

0,75
Constante de la columna (CC)
 $CC = \sqrt{\frac{2\pi^2 E}{\sigma_{fl}}} = \sqrt{\frac{2\pi^2 (207 \times 10^9)}{414 \times 10^6}} = 99.35$ (0.5)

(15) (15)
 $RE < CC \Rightarrow$ se utiliza ecuación de Johnson (0.5)

$$P_{cr} = b^2 \sigma_{FL} \left[1 - \frac{\sigma_{FL} (L_e/r)^2}{4\pi^2 E} \right]$$

$$P_{cr} = (144)(414) \left[1 - \frac{(414 \times 10^6)(60.7)^2}{4\pi^2 (207 \times 10^9)} \right]$$

$$P_{cr} = 48488 \text{ [N]} \quad (0.5)$$

} (15)