$tonf := 1000kgf$

$f_c := 250\frac{kgf}{cm^2}$ $f_y := 4200\frac{kgf}{cm^2}$

$h := 14cm$ Altura de viga $rec := 20mm$

$b := 100cm$ Ancho de viga

$d := h - rec$ $d = 120 \cdot mm$

1. Flexión $M_u := 2.1tonf \cdot m$

$$\beta_1 := \begin{cases} 0.85 & \text{if } f_c < 30MPa \\ 0.65 & \text{if } f_c > 55MPa \\ 0.85 - 0.008\left(\frac{f_c}{MPa} - 30\right) & \text{otherwise} \end{cases} \qquad \beta_1 = 0.85$$

Given

$\rho := 0.001$ $\phi := 0.9$

$$\frac{M_u}{b \cdot d^2} = \phi \cdot \rho \cdot f_y \cdot \left(1 - 0.588 \cdot \rho \cdot \frac{f_y}{f_c}\right)$$ $NL := Find(\rho)$ $\rho := NL$ $\rho = 0.00402$

$A_{sreq} := \rho \cdot b \cdot d$ $A_{sreq} = 4.821 \cdot cm^2$