$$\delta = \frac{P.L}{EA}$$

$$\frac{P_t.(60)}{(45\times10^3).(\pi.10^2-5^2)} = \frac{0,5 - P_p(60)}{(75\times10^3).(\pi.5^2)} \rightarrow$$

$$P_t = \frac{125.\pi.1125 - 9P_p}{5}$$

$$P_p - P_t = 0$$

$$P_p - \left(\frac{125.\pi.1125 - 9P_p}{5}\right) = 0$$

$$P_p = 88.354,68 + 1,8P_p = 0$$

$$2,8P_p = 88.354,68$$

$$P_p = 31.556\ N \rightarrow 31,55\ KN$$

$$\sigma_p = \frac{P_p}{A_p} = \frac{31556}{\pi.5^2} = 401,8\ N/mm^2$$

$$\sigma_T = \frac{P_T}{A_T} = \frac{31556}{\pi.(10^2-5^2)} = 133,9\ N/mm^2$$

$100 - 25 = 75$

6. $P_C \rightarrow \delta = \frac{P_C.L}{E_C.A_C} \rightarrow P_C = \frac{E_C.A_C.\delta}{L}$

$P_A \rightarrow \delta = \frac{P_A.L}{E_A.A_A} \rightarrow P_A = \frac{E_A.A_A.\delta}{L}$

$$P = P_C + P_A \rightarrow (E_C.A_C + E_A.A_A).\frac{\delta}{L}$$

$$\varepsilon = \frac{\delta}{L} = \frac{P}{E_C.A_C + E_A.A_A}$$

$A_C = (200.200) - A_A = 40000 - 1256,6 = 38743,4\ mm^2$

$A_A = (4)\frac{\pi.20^2}{4} = 1256,6\ mm^2$

$$\varepsilon = \frac{-670000}{(25000.38743,4) + (200000.1256,6)} = -0,000549$$

$$\frac{-670000}{968.585.000 + 251320000}$$

$$\frac{-670000}{1,219.10^9}$$

$\sigma_C = E_C.\varepsilon \rightarrow 25000.(-0,000549) = -13,73\ N/mm^2$

$\sigma_A = E_A.\varepsilon \rightarrow 200000.(-0,000549) = -109,8\ N/mm^2$