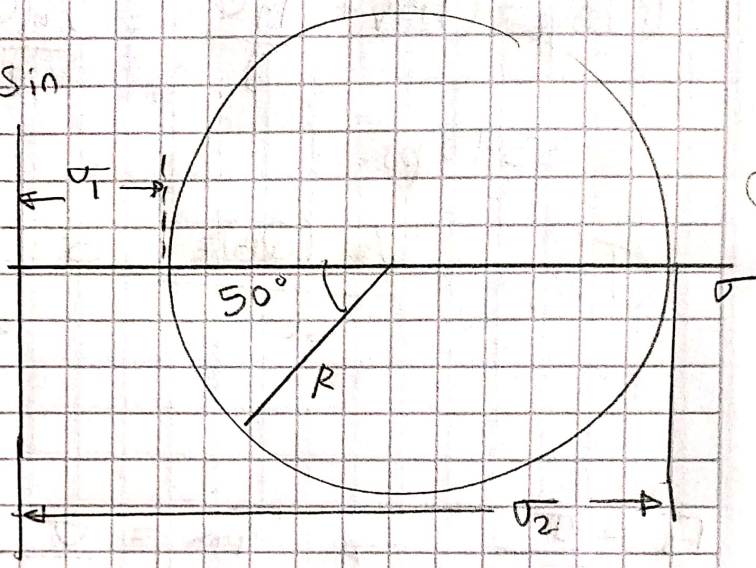
5) Codigo 180324S

$\rightarrow \beta = 25^\circ \quad \rightarrow 2\beta = 50^\circ$

$r = \frac{d}{2} - t = \frac{20}{2} - 0{,}25 = 9{,}75 in$



$\sigma_1 = \frac{Pr}{t} \qquad \sigma_2 = \frac{Pr}{2t}$

$\sigma_{Avg} = \frac{\sigma_1 + \sigma_2}{2} = \frac{3Pr}{4t}$

$R = \frac{1}{2}(\sigma_1 - \sigma_2)$

$R = \frac{Pr}{4t}$

$\sigma_x = \sigma_{Avg} - R\cos 50^\circ$

$\sigma_x = \frac{3Pr}{4t} - \frac{Pr}{4t}(0{,}642)$

$\sigma_x = P\left(\frac{3r}{4t} - \frac{r}{4t}\right)$

$P = \frac{\sigma_x}{\left(\frac{2r}{4t}\right)} = \frac{10{,}5}{\left(\frac{2(9{,}75)}{4(0{,}25)}\right)} = 0{,}53\ ksi$

$P = 0{,}53\ ksi \left(\frac{6{,}8948\ MPa}{1\ ksi}\right) = 3{,}7125\ MPa$