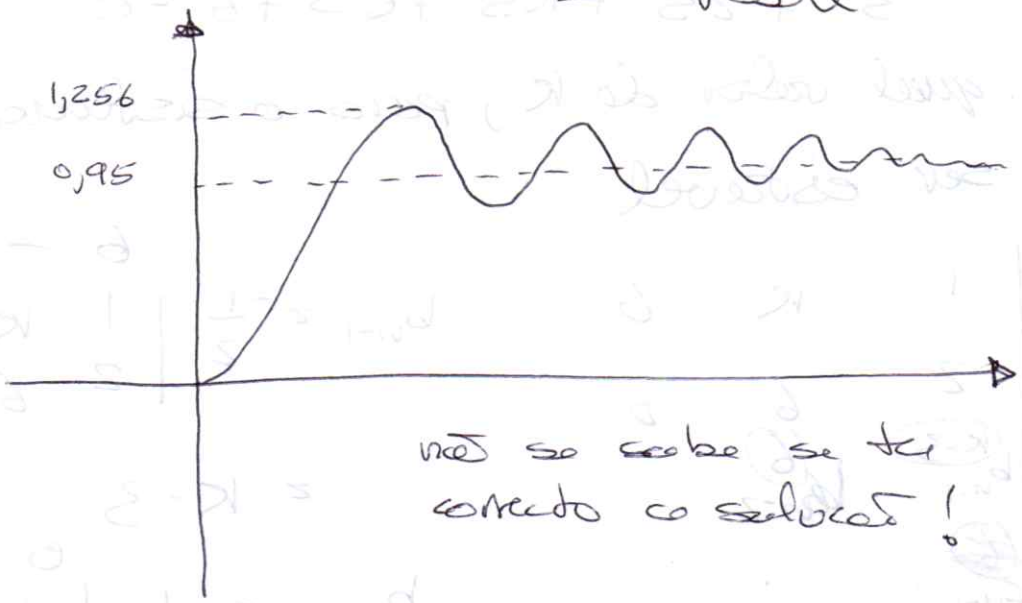
2º teste



não se sabe se tá correcto ou solução!

1. $\xi ; \omega_n = ?$ $\quad y(t) = 0,95$ regime permanente

a) $t_s = 2$

$M_p = \frac{1,256 - 0,95}{0,95} \approx \underline{0,322}$ $\quad t_r = 0,3473$

$M_p = e^{-\frac{\xi \pi}{\sqrt{1-\xi^2}}}$ $\quad \xi = 0,339$

$t_p = 0,569$

$\Rightarrow \xi \approx 0,341$ $\quad w_d = 5,52$

$t_{s|2\%} = \frac{4}{\xi \omega_n} = \frac{4}{0,341\, \omega_n}$ $\quad K = 33,02$

$96\%\ \omega_n^2$

$\Rightarrow \omega_n = \frac{\frac{4}{2}}{0,341} = \underline{5,865}$

$\omega_n^2 \approx 34,4$

b) $\frac{\omega_n^2}{s^2 + 2\xi\omega_n s + \omega_n^2} \overset{0,1\%}{=} \frac{34,4}{s^2 + 4s + 34,4}$ $\quad$ erro aqui