FORMULÁRIO:

$G(s) = \frac{A}{s^2+2\xi\omega_n s+\omega_n^2}$ $PO = 100\frac{M_P-V_{SS}}{V_{SS}} = 100\ e^{-\left(\pi\xi/\sqrt{1-\xi^2}\right)}$ $t_r \approx \frac{0.8+2.5\xi}{\omega_n}$ $t_d \approx \frac{1+0.7\xi}{\omega_n}$

$V_P = M_P = V_{SS}(1+e^{-\left(\pi\xi/\sqrt{1-\xi^2}\right)})$ $t_s(\pm 2\%) \approx \frac{4}{\xi\omega_n}$ $t_s(\pm 5\%) \approx \frac{3}{\xi\omega_n}$ $t_P = \frac{\pi}{\omega_n\sqrt{1-\xi^2}}$

$\mathcal{L}^{-1}\left\{\frac{1}{s}\right\} = \begin{cases} 1 & , se\ t \geq 0 \\ 0 & , se\ t < 0 \end{cases}$, $\mathcal{L}^{-1}\left\{\frac{1}{s^2}\right\} = \begin{cases} t & , se\ t \geq 0 \\ 0 & , se\ t < 0 \end{cases}$, $\mathcal{L}^{-1}\{X(s+a)\} = e^{-at}\mathcal{L}^{-1}\{X(s)\}$

$$y(t) = \sum_k a_k \cos(k\omega_o t) + \sum_k b_k \sin(k\omega_o t) \qquad y(t) = \sum_k C_k e^{jk\omega_o t}$$

$$K = [0 \quad \cdots \quad 0 \quad 1]Q^{-1}\Phi(A) \qquad Q = [B \quad AB \quad A^2B \quad \cdots \quad A^{n-1}B]$$