Tarea #2

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$$G_o = \frac{3}{s^2+2s+1}$$

$$= \frac{\frac{3}{s^2+2s+1}}{1+\frac{3}{s^2+s+1}} = \frac{\frac{3}{\cancel{s^2+2s+1}}}{\frac{s^2+2s+1+3}{\cancel{s^2+s+1}}} = \frac{3}{3+s^2+2s+1} =$$

$$= \frac{3}{s^2+2s+4}$$

$$\frac{\omega_n^2}{s^2+2\zeta\omega_n s+\omega_n^2} = \frac{3\cdot\frac{2}{3}}{s^2+2s+4}\cdot\frac{3}{2} = \frac{2}{s^2+2s+4}\cdot\frac{3}{2}$$

$\omega_n^2 \Rightarrow \omega_n = \sqrt{6}$

$\zeta\omega_n = 1$

$\zeta = \frac{1}{\sqrt{6}} = \frac{\sqrt{6}}{6}$

Polos: Vuelven 0 al denominador

s^2+2s+4

Parte real

$\alpha = \frac{\sqrt{6}}{6}\cdot\sqrt{6} = 1$

$s_1 = -1+\sqrt{3}\,i \Rightarrow -1,\ 1{,}73\,i$

$s_2 = -1-\sqrt{3}\,i \Rightarrow -1,\ -1{,}73\,i$

Parte Imaginaria

$\omega = \omega_n\sqrt{1-\zeta^2}$

$\omega = \sqrt{6}\cdot\sqrt{1-\left(\frac{\sqrt{6}}{6}\right)^2}$

$\omega = \sqrt{5}$

$\omega = 2.23\,i$