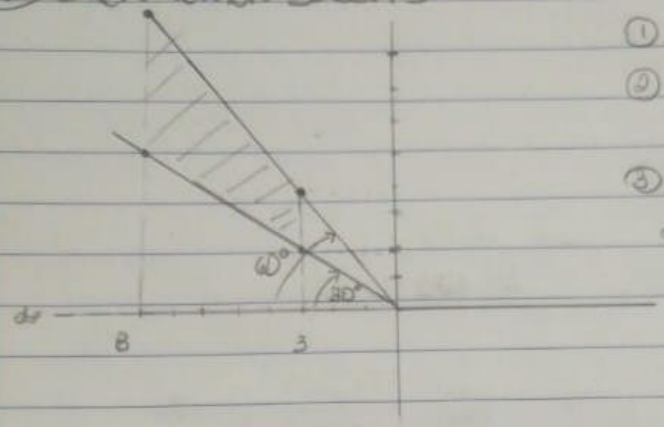
Tarea #4

Daniel Alemán Sabaío



① obtener ζ y ω_n

② obtener c/u Puntos Mp Ts2%

③ Para cada Punto supera un sistema q' cumple

$\zeta = \cos 60° = 0.5$ $\quad \alpha = 3$

$\zeta = \cos 30° = 0.86$ $\quad \alpha = 8$

$\zeta\omega_n = \alpha$ $\quad 0.5 \cdot \omega_n = 3 \Rightarrow 0.86 \cdot \omega = 3$

$\omega_n = 6$ $\quad \omega_n = 3.5$

$0.5\omega_n = 8 \Rightarrow 0.86\omega_n = 8$

$\omega_n = 16 \Rightarrow \omega_n = 9.30$

$Mp = e^{-\left(\frac{0.5\pi}{\sqrt{1-0.5^2}}\right)} = 0.16$ Para $\alpha = 3$

$Mp = e^{-\left(\frac{0.86\pi}{\sqrt{1-0.86^2}}\right)} = 0.004333$ Para $\alpha = 8$

$Ts2\% < 3$ $\quad Ts2\% > 8\%$

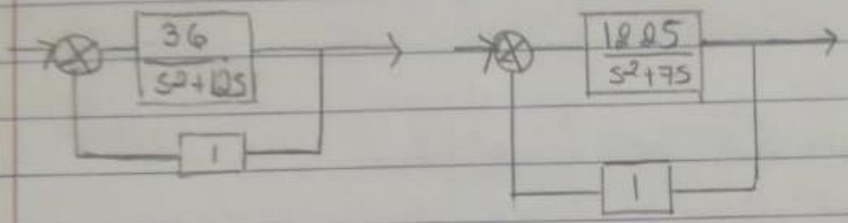
$3 > \frac{4}{\zeta\omega_n}$ $\quad 8 < \frac{4}{\zeta\omega_n}$

$\zeta\omega_n > \frac{4}{3}$ $\quad \zeta\omega_n < 0.5$

$$\frac{\omega_n^2}{s^2 + 2\zeta\omega_n s + \omega_n^2}$$

a) $\alpha = 3$

1) $\frac{36}{s^2 + 12s + 36}$ 2) $\frac{12.5}{s^2 + 7s + 12.25}$



b) $\alpha = 8$.

1) $\frac{256}{s^2 + 8s + 256}$ 2) $\frac{86.5}{s^2 + 8s + 86.5}$