

$$① \quad G(s) = \frac{s \cdot 2(s+1)(s+5)}{(s+2)(s^2+6s+13)}$$

$$\text{Polos: } \begin{cases} -2 \\ -3 \pm j2 \end{cases} \quad \text{Ceros: } \begin{cases} -1 \\ -5 \end{cases}$$

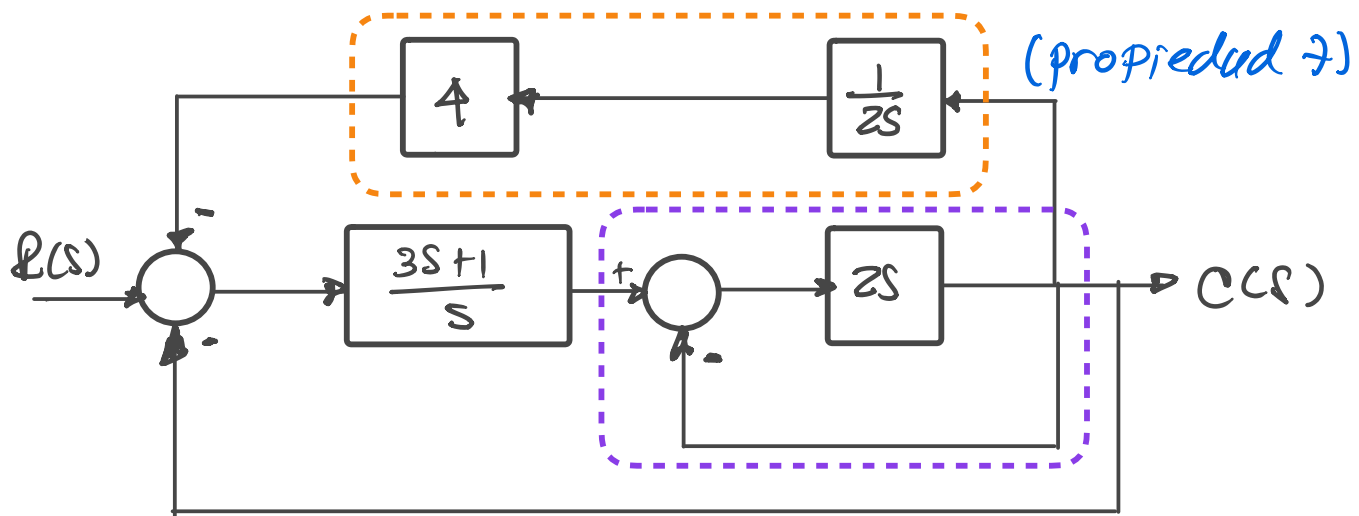
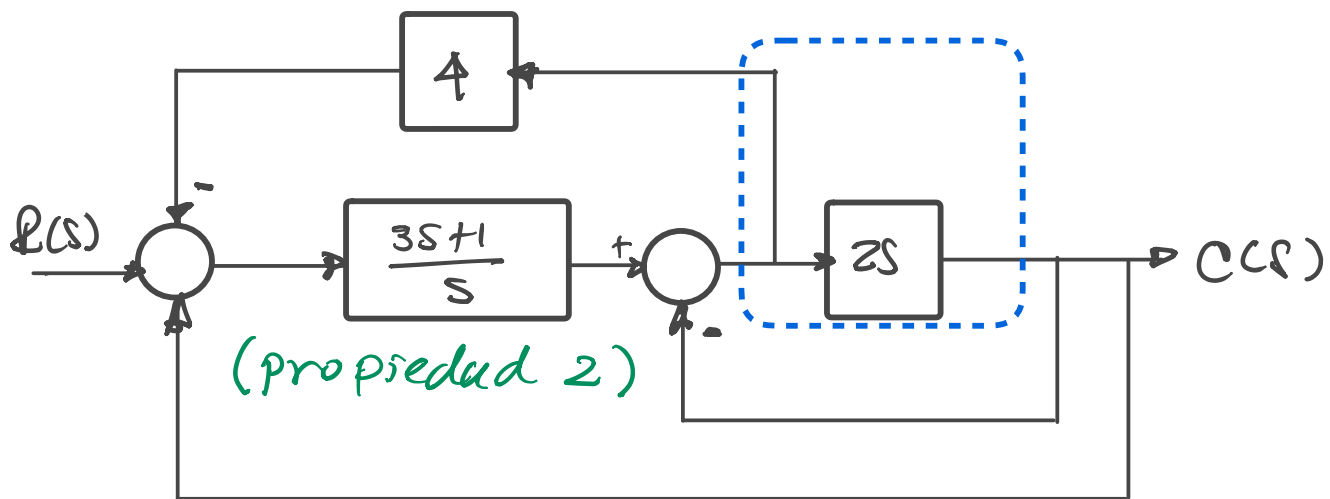
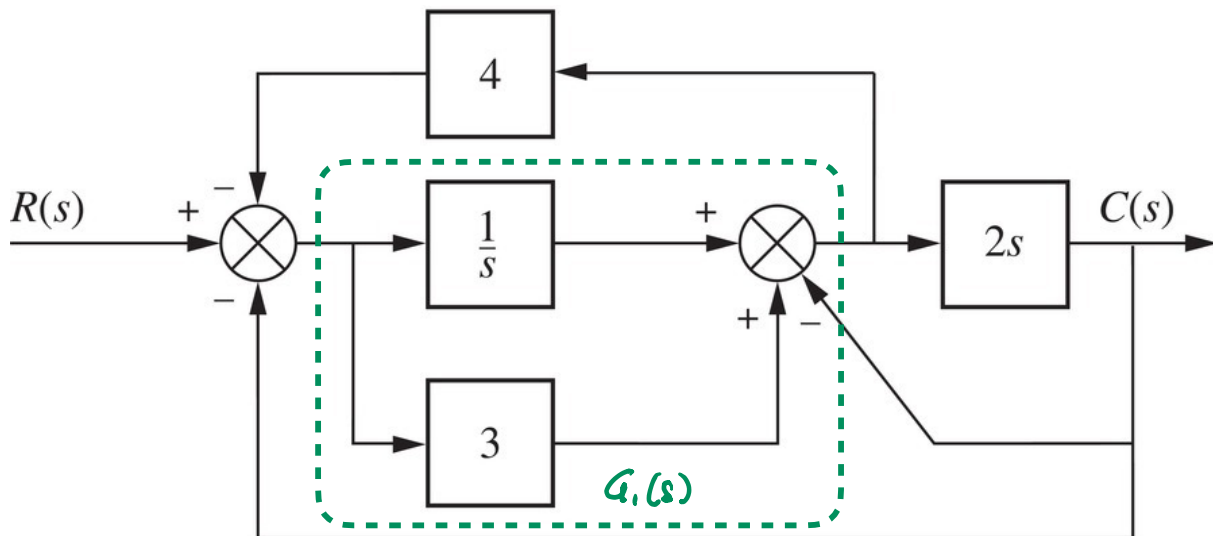
$$Y(s) = \frac{s \cdot 2(s+1)(s+5)}{(s+2)(s^2+6s+13)}$$

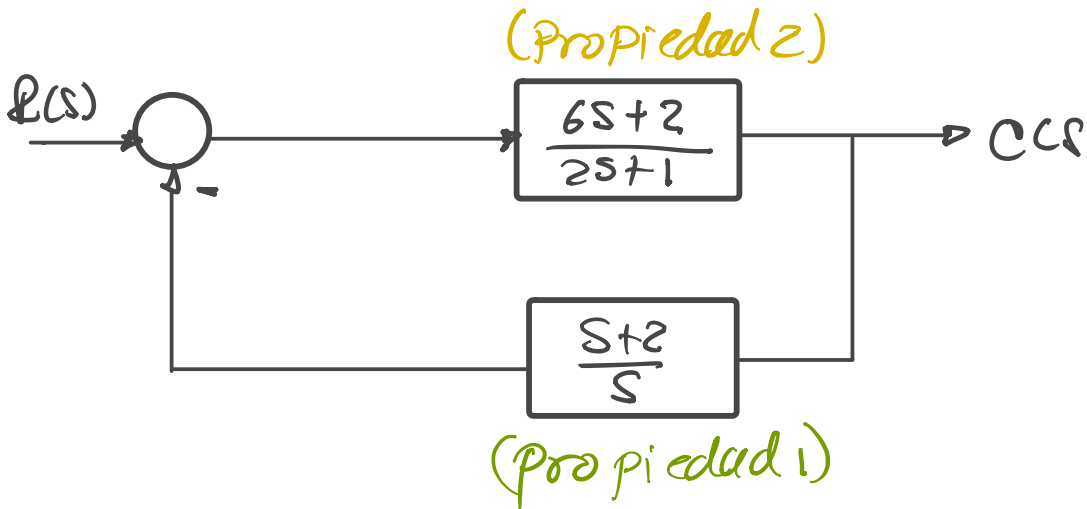
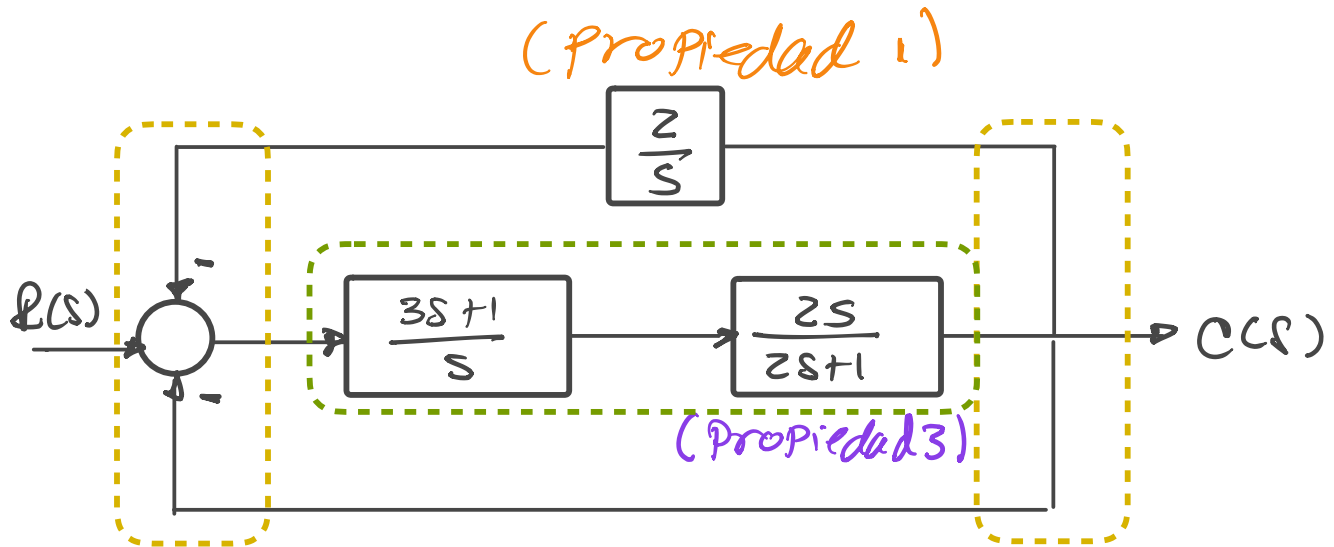
La respuesta al escalón tiene presentes los modos fundamentales, además de un término constante.

$$f(t) = A + B e^{-2t} + C e^{-3t} \cos(2t) + D e^{-3t} \sin(2t)$$

Como $\lim_{s \rightarrow 0} sY(s) = 1 \Rightarrow$ el sistema se estabiliza en 1

②





$$T(s) = \frac{C(s)}{R(s)} = \frac{(6s+2)s}{s(2s+1) + (6s+2)(s+2)}$$

$$= \frac{6s^2 + 2s}{2s^2 + s + 6s^2 + 12s + 2s + 4}$$

$$T(s) = \frac{6s^2 + 2s}{8s^2 + 15s + 4}$$