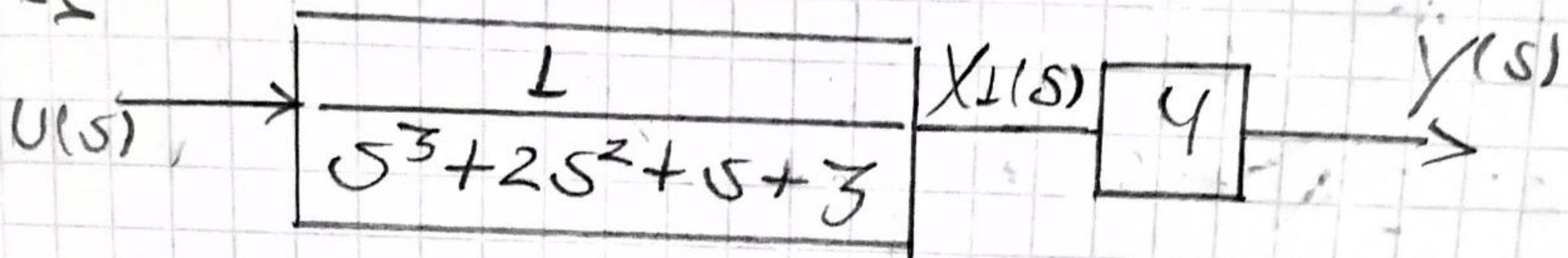


# Bonificación #1

1)  $\rightarrow b(s) = \frac{4}{s^3 + 2s^2 + s + 3}$   $\checkmark$   $\ddot{x} + 2\dot{x} + x + 3x$

R-2



$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -3 & -1 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} u$$

$$y = [4 \ 0 \ 0] \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

Diagrama de bloques  $\rightarrow$

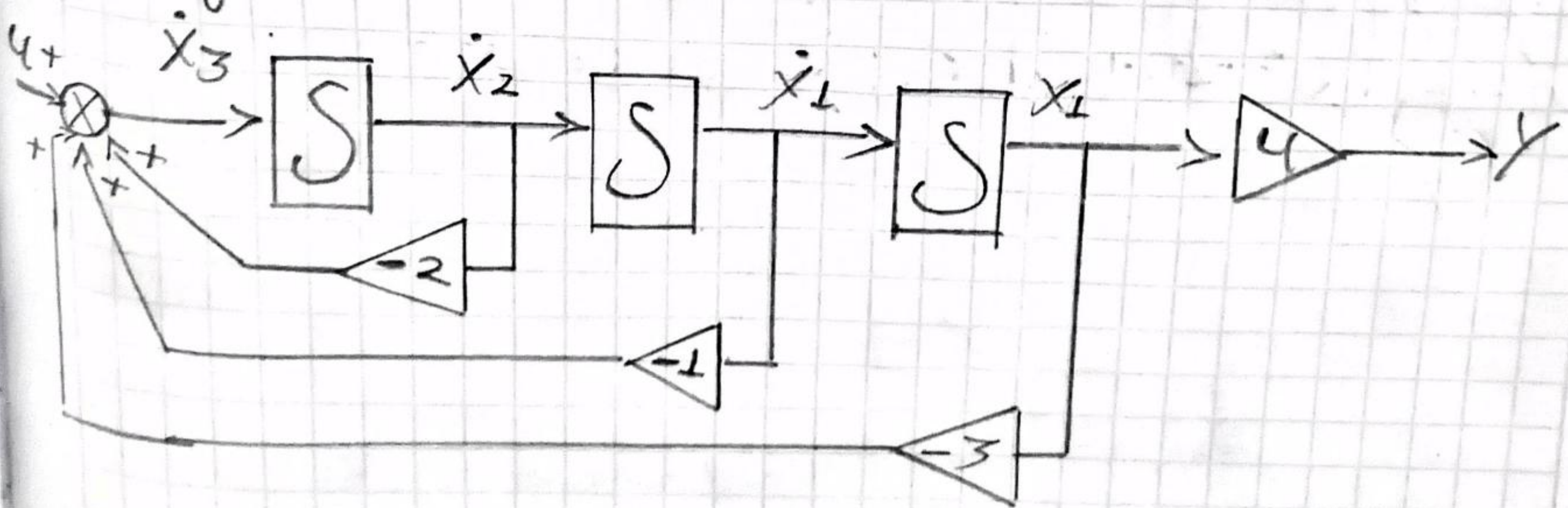
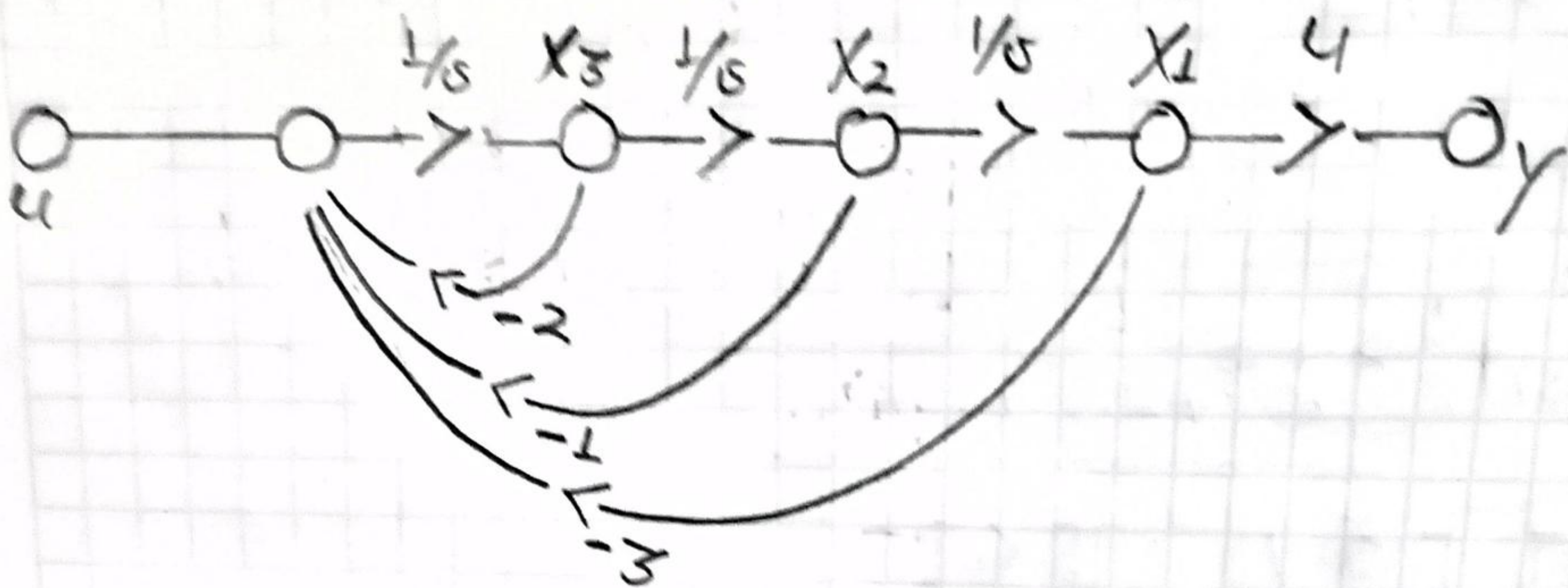


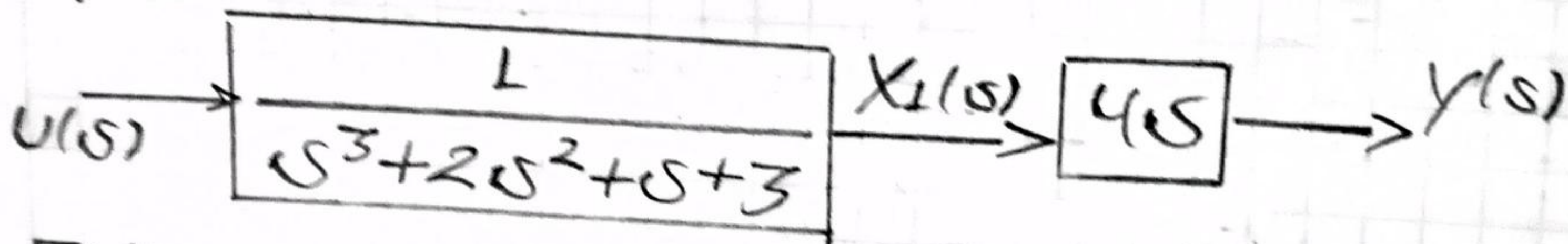


Diagrama de flujo de señal  $\rightarrow$



$$2) \rightarrow G(s) = \frac{4s}{s^3 + 2s^2 + s + 3}$$

R  $\rightarrow$



$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -3 & -1 & -2 \end{bmatrix} \begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} 4$$

$$Y = [0 \ 4 \ 0] \begin{bmatrix} X_1 \\ X_2 \\ X_3 \end{bmatrix}$$



Diagrama de Bloques  $\rightarrow$

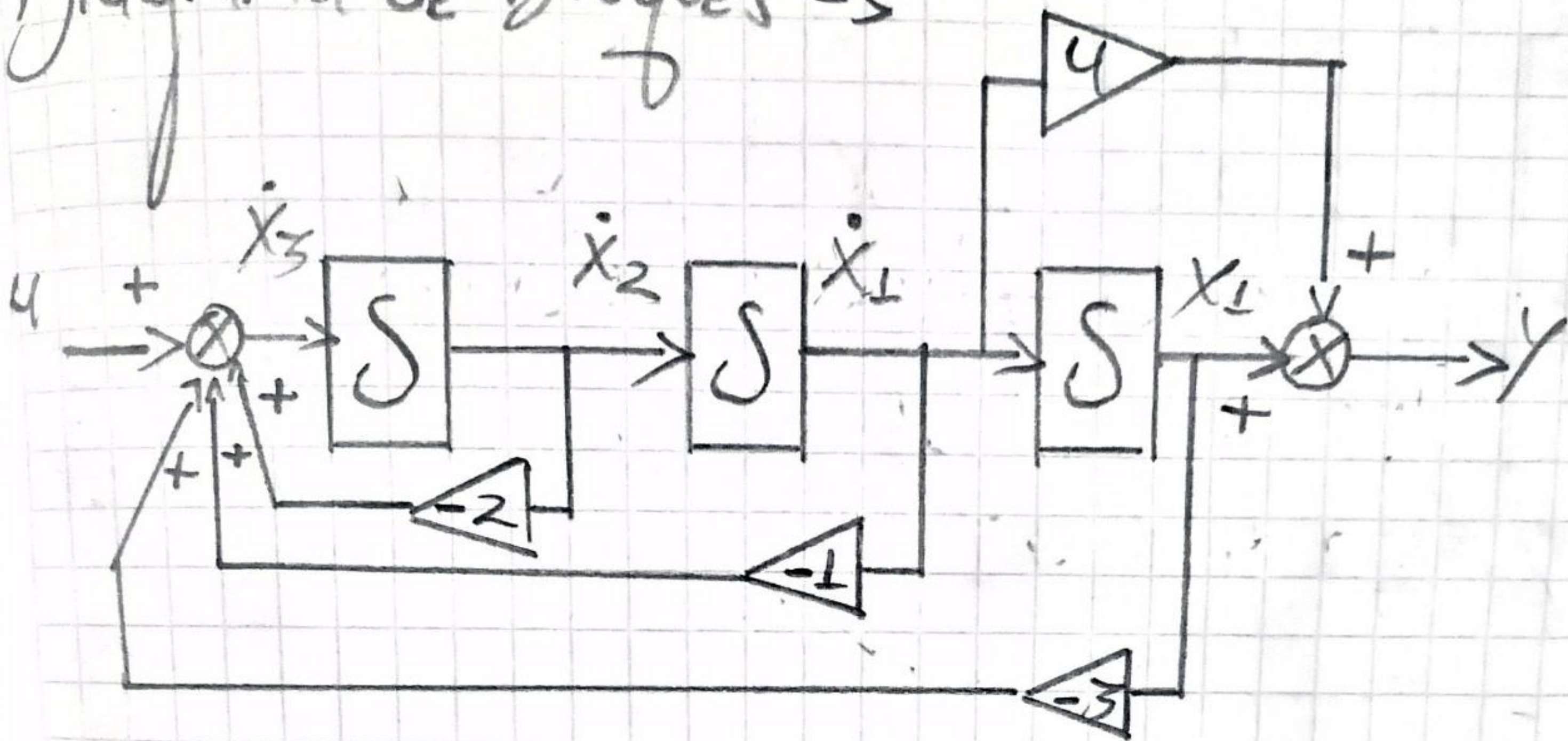
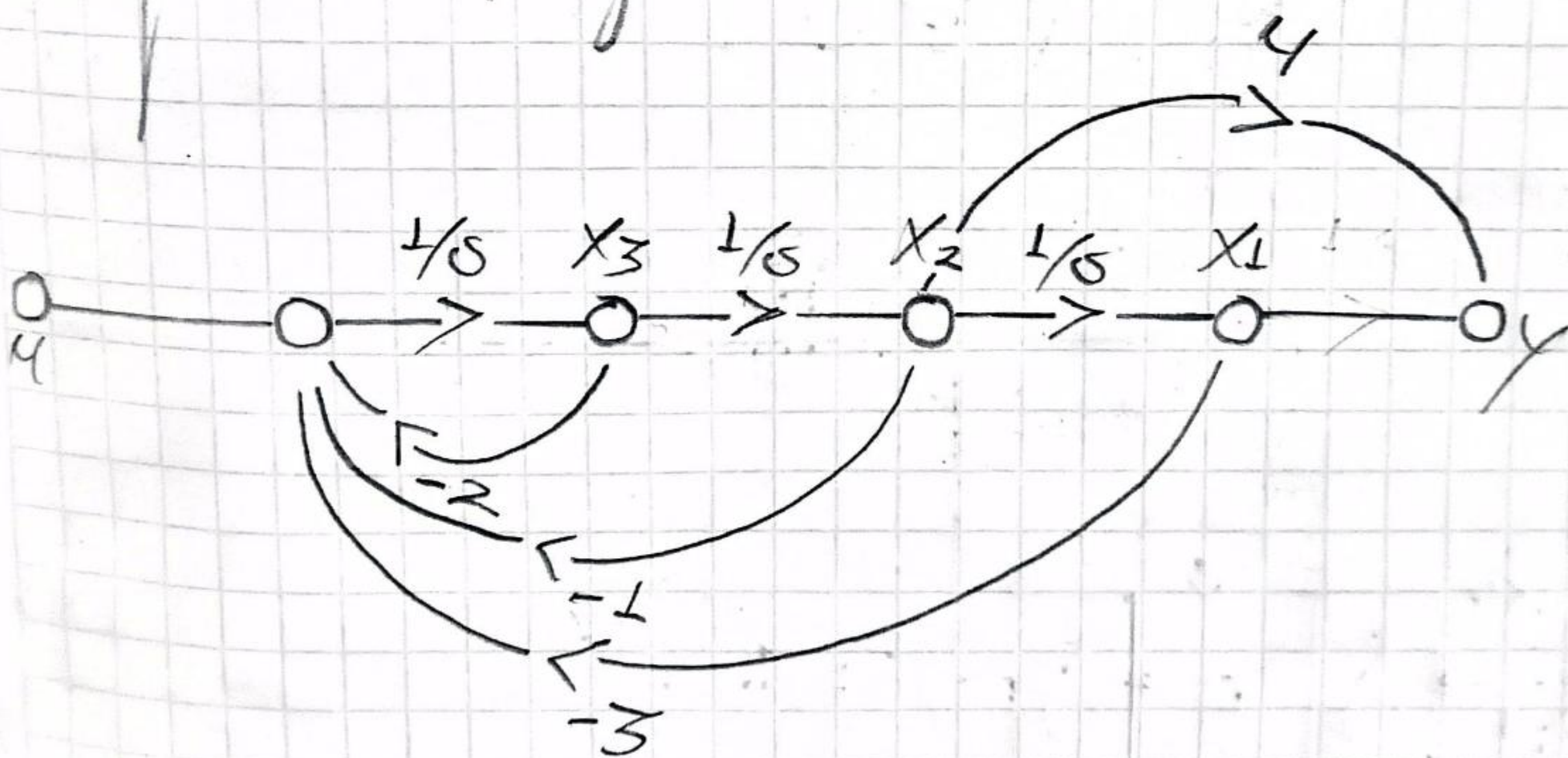
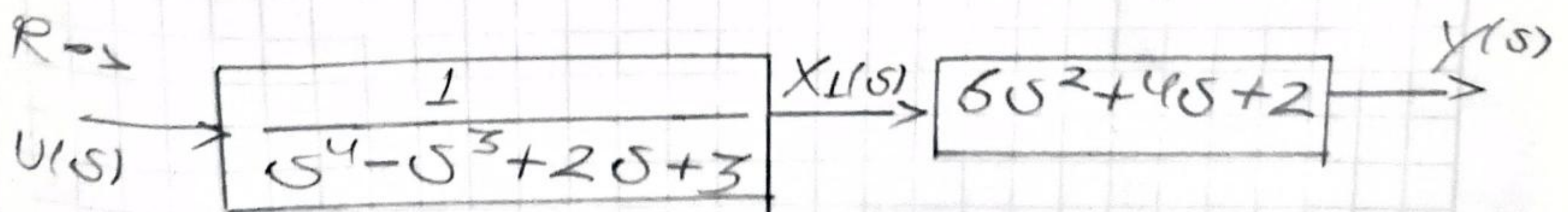


Diagrama de flujo de señal  $\rightarrow$



$$8) \rightarrow G(s) = \frac{6s^2 + 4s + 2}{s^4 - s^3 + 2s + 3} \rightarrow \ddot{x} - \ddot{x} + 2\dot{x} + 3x$$





$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \\ \dot{x}_4 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ -3 & -2 & 0 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \end{bmatrix} u$$

$$y = [2 \ 4 \ 6 \ 0] \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix}$$

Diagrama de Bloques

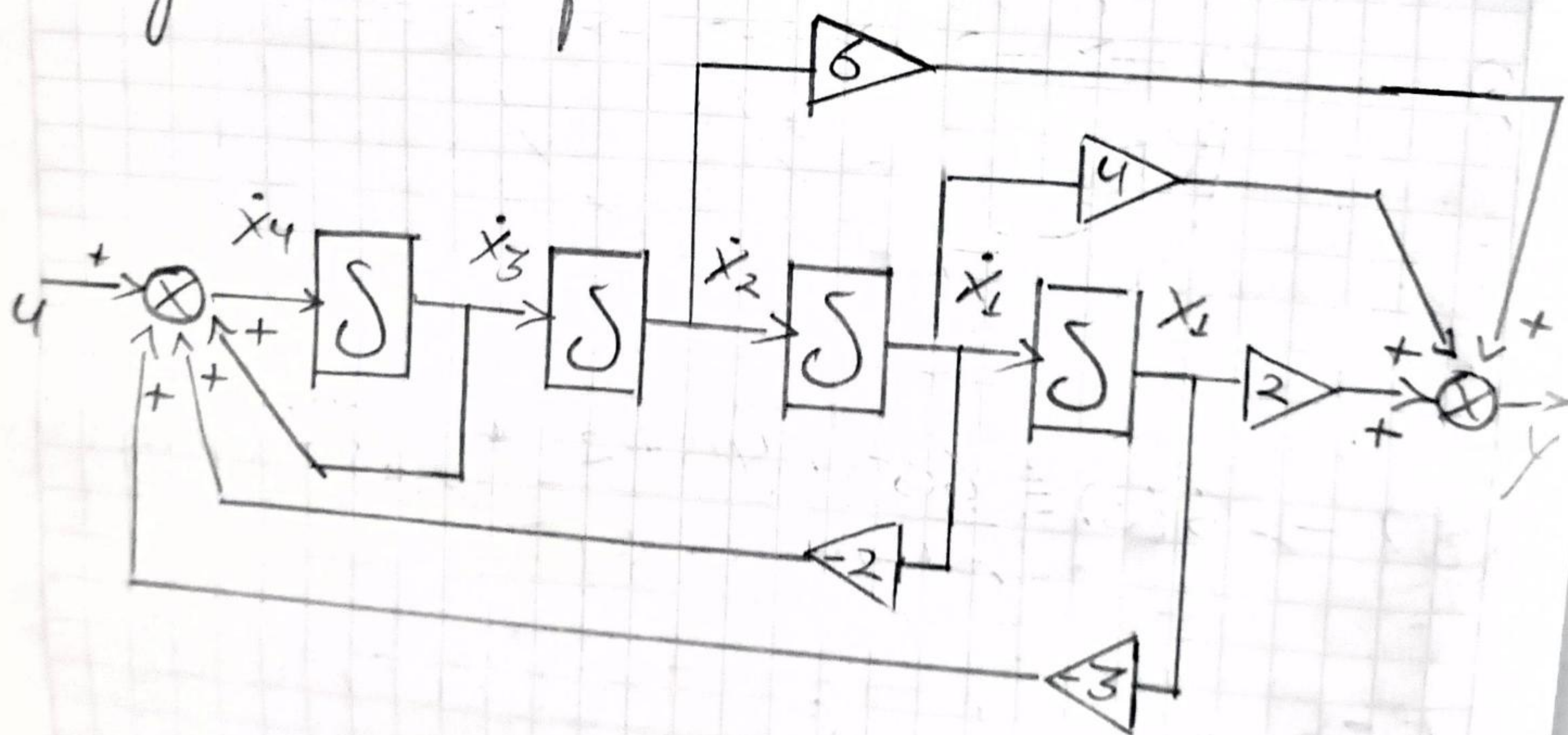




Diagrama de flujo de señal  $\rightarrow$

