

Matthias Schneider Cordoba

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$$b) y[m] - \frac{2}{7} y[m-1] + \frac{1}{2} y[m-2] = 3x[m-1] - 6x[m]$$

$$y[-1] = 10 \quad ; \quad y[-2] = 4$$

$$y(z) - \frac{2}{7} (y(z) \cdot z^{-1} + y[-1]) + \frac{1}{2} (z^{-2} y(z) + z^{-1} y[-1] + y[-2]) =$$

$$3 (x(z) \cdot z^{-1} + x[-1]) - 6 \cdot 1$$

$$y(z) \cdot \left(1 - \frac{2}{7} z^{-1} + \frac{1}{2} z^{-2} \right) = \underbrace{\frac{2}{7} y[-1] - \frac{1}{2} z^{-1} y[-1] - \frac{1}{2} y[-2]}_{\text{NATURAL}} \dots$$

$$\dots + \frac{3z^{-1} - 6}{1 - z^{-1}}$$

Forced

$$y(z) = \frac{-5z^{-1} + 6/7}{1 - 2/7 z^{-1} + 1/2 z^{-2}} = \frac{A}{(1 + (-0.142 - j0.692)z^{-1})} \dots$$

$$\dots \frac{B}{(1 + (-0.142 + j0.692)z^{-1})}$$

Ou, fazemos por resíduos

$$y(z) = \frac{-5z^{-1} + 6/z}{(1 - 2/7z^{-1} + 1/2z^2)} \cdot z^2 \Rightarrow \frac{6/7z^2 - 5z}{z^2 - 2/7z + 1/2}$$

$$\text{Raízes}_{1,2} = 0,1429 + j0,6925 \text{ e } 0,1429 - j0,6925$$

$$A = 0,428 + j3,521$$

$$B = 0,428 - j3,521$$

$$y_{\text{mot}}[m] = A \cdot r^{[m]} + B \cdot r^{[m]}$$

$$y_{\text{mot}}[m] = 3,546 \cdot e^{+j1,449} \cdot (0,707)^{[m]} \cdot e^{j1,367[m]} + \dots \\ \dots + 3,546 \cdot e^{-j1,449} \cdot (0,707)^{[m]} \cdot e^{-j1,367[m]}$$

$$y_{\text{mot}}[m] = (7,092 \cdot (0,707)^{[m]} \cdot \cos(1,449 + 1,367[m])) u[m]$$

$$\text{Forçada: } \left(\frac{3z^{-1} - 6}{1 - z^{-1}} \right) \leadsto y(z) = \frac{1}{(1 - 2/7z^{-1} + 1/2z^{-2})} \cdot \frac{3z^{-1} - 6}{1 - z^{-1}}$$

$$y(z) = \frac{3z^{-1} - 6}{1 - z^{-1} - 2/7z^{-1} + 2/7z^{-2} + 1/2z^{-2} - 1/2z^{-3}}$$

$$y(z) = \frac{3z^{-1} - 6}{1 - 9/7z^{-1} + 11/4z^{-2} - 1/2z^{-3}} \cdot z^3 = \frac{-6z^3 + 3z^2 + 0 + 0}{1 - 9/7z^{-1} + 11/4z^{-2} - 1/2z^{-3}}$$

$$\text{RAÍZES}_{1,2,3} = 1 \text{ e } 0,1429 + j0,6925 \text{ e } 0,1429 - j0,6925$$

$$A = -2,470$$

$$B = -1,764 + j1,255$$

$$C = -1,764 - j1,255$$

$$y_{RESP}[m] = A \cdot r^m + B \cdot r^m + C \cdot r^m$$

ARREDONDO

$$y_{RESP}[m] = -2,470 \cdot (1)^m + 2,165 \cdot e^{-j2,523} \cdot (0,707)^m \cdot e^{j1,367[m]} + 2,165 \cdot e^{-j2,523} \cdot (0,707)^m \cdot e^{j1,367[m]}$$

$$y_{RESP}[m] = -2,470 \cdot (1)^m + 4,33 \cdot (0,707)^m \cdot \cos(2,523 + 1,367[m])$$

$$y_{COMPLETA}[m] = (-2,470 \cdot (1)^m + 4,33 \cdot (0,707)^m \cdot \cos(2,523 + 1,367[m])) \cdot U[m] + ((-2,470 \cdot (1)^{m-1} + 4,33 \cdot (0,707)^{m-1} \cdot \cos(2,523 + 1,367[m-1])) \cdot U[m-1])$$

$$c) H(z) = \frac{+3z^{-1} - 6}{1 - 2/4z^{-1} + 1/2z^{-2}}$$

