

Inés Maricón

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TAREA No. 1

$$b(s) = \frac{s+3}{s^3+9s^2+4s+20} \quad ; \quad b(s) = \frac{Y(s)}{U(s)}$$

$$\Rightarrow (s+3)U(s) = (s^3+9s^2+4s+20)Y(s) \quad // \mathcal{L}^{-1}$$

$$\dot{u}(t) + 3u(t) = \ddot{y}(t) + 9\dot{y}(t) + 4\dot{y}(t) + 20y(t)$$

$$\ddot{y}(t) = \dot{u}(t) + 3u(t) - 9\dot{y}(t) - 4\dot{y}(t) - 20y(t)$$

$$\ddot{y} = -9\dot{y} + \dot{u} - 4\dot{y} + 3u - 20y \quad // \mathcal{L}$$

$$\dot{y} = -9y + \dot{u} - 4y + \int 3u - 20y \, dt' \quad // \mathcal{L}$$

$$\dot{y} = -9y + \int (u - 4y) dt' + \int (3u - 20y) dt'' \quad // \mathcal{L}$$

$$y = -\int 9y \, dt' + \int (u - 4y) dt'' + \int (3u - 20y) dt'''$$