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$$Ex 01) 2\ddot{x} + 7\dot{x} + 3x = 0; \quad x(0) = x_0; \quad \dot{x}(0) = 0$$

Aplicando T.L.

$$2.(s^2 \cdot x(s) - s x_0) + 7.(s \cdot x(s) - x_0) + 3.(x(s)) = 0$$

$$(2s^2 + 7s + 3)x(s) = (2s + 7)x_0$$

$$x(s) = \frac{(2s + 7) \cdot x_0}{2s^2 + 7s + 3} = 2.(s + 0,5)(s + 3)$$

Transformada Inversa

$$x(s) = \frac{(2s + 7) \cdot x_0}{2(s + 0,5)(s + 3)}$$

$$x(s) = \left(\frac{\alpha_1}{s + 0,5} + \frac{\alpha_2}{s + 3} \right) \frac{x_0}{2}; \quad \text{onde } \alpha_1 = 2,4$$
$$\alpha_2 = -0,4$$

$$x(s) = \left(\frac{2,4}{s + 0,5} + \frac{(-0,4)}{s + 3} \right) \cdot \frac{x_0}{2} \Rightarrow x(t) = 1,2 \cdot x_0 \cdot e^{-0,5t} - 0,2 \cdot e^{-3t}$$