

LISTA DE EXERCÍCIOS 1:

1) Calcule a Transformada de Laplace para:

a) $f(t) = 2 + 5e^{-2t} - 3\text{sen}(4t)$

b) $f(t) = t \cdot \cos(a \cdot t)$

c) $f(t) = \begin{cases} e^{2t}, & 0 \leq t < 1 \\ 4, & 1 \leq t \end{cases}$

d) $f(t) = \text{sen}(at)$

2) Encontre a Transformada de Laplace:

$$\ddot{x} + 2\dot{x} + 5x = e^{-t}, \quad x(0) = 1, \quad \dot{x}(0) = -3$$

3) Encontre a Transformada inversa de Laplace:

a) $F(S) = \frac{5(s+2)}{s^2(s+1)(s+3)}$

b) $F(S) = \frac{s^4 + 2s^3 + 3s^2 + 4s + 5}{s(s+1)}$

c) $F(S) = \frac{1}{s(s^2 + w^2)}$