

Calcular $\mathcal{L}\{f(t)\}$ de : **(Metodo Alternativo)**

1) $f(t) = (t + 2) u(t - 3)$

■ $f(t) = (t - 3 + 3 + 2) u(t - 3)$

$f(t) = (t - 3 + 5) u(t - 3) \quad | \quad t - 3 \rightarrow t$

$f(t) = (t + 5) u(t - 3) \quad | \quad \text{Laplace}$

$F(s) = \left[\frac{1}{s^2} + \frac{5}{s} \right] e^{-3s}$ ✗

■ $f(t) = (t + 2) u(t - 3)$

$f(t) = ((t + 3) + 2) u(t - 3)$

$f(t) = (t + 5) u(t - 3)$

2) $f(t) = e^{2-t} u(t - 4)$

$f(t) = e^{2-(t+4)} u(t-4)$

$f(t) = e^{-2-t} u(t-4)$

$f(t) = e^{-2} \cdot e^{-t} u(t-4) \quad | \quad \text{Laplace}$

$F(s) = \left(\frac{e^{-2}}{s+1} \right) e^{-4s}$ ✗



Calcular $\mathcal{L}\{f(t)\}$ de :

3) $f(t) = (t^2 + 1) u(t - 4)$

$$f(t) = ((\underbrace{t-4}_a + \underbrace{4}_b)^2 + 1) u(t-4)$$

$$f(t) = ((\underbrace{t-4}_a)^2 + \underbrace{24}_{2ab}(\underbrace{t-4}_a) + \underbrace{16}_{b^2} + 1) u(t-4)$$

$$f(t) = ((t-4)^2 + 8(t-4) + 17) u(t-4) \quad | t-4 \rightarrow t$$

$$f(t) = (t^2 + 8t + 17) u(t-4)$$

■ $f(t) = (t^2 + 1) u(t-4)$

$$f(t) = ((t+4)^2 + 1) u(t-4)$$

$$f(t) = (t^2 + 8t + 16 + 1) u(t-4)$$

$$f(t) = (t^2 + 8t + 17) u(t-4) \quad \mathcal{L}\{ \}$$

$$F(s) = \left(\frac{2}{s^3} + \frac{8}{s^2} + \frac{17}{s} \right) e^{-4s}$$

$$\checkmark \quad f(t) = \cos(t) u(t-2)$$

$$f(t) = \cos(\underbrace{t}_a + \underbrace{2}_b) u(t-2)$$

$$f(t) = \left(\begin{matrix} \cos(t) \cdot \cos(2) \\ \sin(t) \cdot \sin(2) \end{matrix} - \right) u(t-2)$$



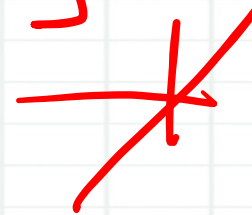
Calcular la Transformada Inversa $\mathcal{L}^{-1}\{F(s)\}$ de :

$$1) F(s) = \frac{e^{-2s}}{s^2(s+1)} = e^{-2s} \left[\frac{1}{s^2(s+1)} \right]$$

$$F(s) = e^{-2s} \left[\frac{-1}{s} + \frac{1}{s^2} + \frac{1}{s+1} \right] \quad | \mathcal{L}^{-1} \{ \}$$

$$f(t) = u(t-2) [-1 + t + e^{-t}]$$

$$f(t) = u(t-2) [-1 + (t-2) + e^{-(t-2)}]$$



Encuentre la $\mathcal{L}\{f(t)\}$ en terminos de escalon unitario :

$$f(t) = \begin{cases} t & \text{si } 0 \leq t < 1 \text{ } a \\ t^2 - 4t + 4 & \text{si } 1 \leq t < 4 \text{ } b \\ t & \text{si } t \geq 4 \text{ } c \end{cases}$$

$$f(t) = f_1(t)[u(t-0) - u(t-a)] + f_2(t)[u(t-a) - u(t-b)] + f_3(t)[u(t-b) - u(t-c)] + \dots + f_n(t)u(t-c)$$