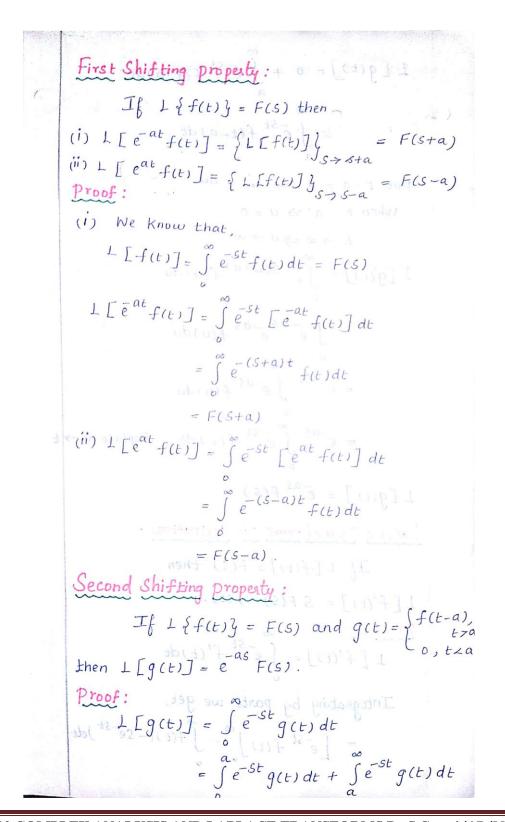




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Let 
$$f'(x) = e^{x} f(x) + s \int_{0}^{\infty} e^{-st} f(t) dt$$

$$= SF(s) - f(0)$$

Let  $f''(t) = S^{2}F(s) - Sf(0) - f'(0)$ 

Let  $L[g'(t)] = SG(s) - g(0)$ 

We know that,

$$L[f'(t)] = SL[f(t)] - f(0)$$

Replace  $f(t) \rightarrow f'(t) & f'(t) \rightarrow f''(t) & f''(t) & f''(t) \rightarrow f''(t) & f''(t) \rightarrow f''(t) & f''$ 





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$$\Rightarrow L \left[ \int_{S}^{L} f(t) dt \right] = \int_{S}^{L} L \left[ \int_{S}^{L} f(t) \right]$$

$$\Rightarrow L \left[ \int_{S}^{L} f(t) dt \right] = \frac{F(S)}{S}$$

Derivative of Laplace Transform (or) Laplace

transform of  $L f(t)$ :

$$L \left[ \int_{S}^{L} f(t) dt \right] = F(S) + \int_{S}^{L} f(t) dt + \int_{S}^{L}$$





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