

Ex: Find the Laplace transforms of the following waveforms:

$$f(t) = (t-b)e^{-at}$$

SOL'N: We multiply e^{-at} by t and $-b$:

$$f(t) = te^{-at} - be^{-at}$$

We Laplace transform each term:

$$\mathcal{L}\{f(t)\} = \mathcal{L}\{te^{-at}\} - b\mathcal{L}\{e^{-at}\}$$

$$= \frac{1}{(s+a)^2} - \frac{b}{s+a}$$