Laplace Transforms of Integrals

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Laplace transforms of integrals

Ex. Proof that the Laplace transform of an integral is

$$\mathcal{L}\left[\int_0^t f(t^*)dt^*\right] = \frac{1}{s}F(s)$$

Laplace transforms of derivatives and integrals

$$\text{Derivative:} \qquad \mathcal{L}\left[\frac{d}{dt}f(t)\right] = sF(s) - f(0)$$

$$\text{Integral:} \qquad \mathcal{L}\left[\int_0^t f(t^*)dt^*\right] = \frac{1}{s}F(s)$$