Table 2.1: Summary of Laplace Transform Properties

Description	Time Domain	Laplace Domain
Linearity	$\mathscr{L}[(\gamma f(t) + \beta g(t))]$	$\gamma F(s) + \beta G(s)$
Differentiation	$\mathscr{L}[\frac{d^n}{dt^n} f(t)]$	$s^n F(s)$
Integration	$\mathscr{L}[\int_1 \dots \int_n f(t)dt]$	$\frac{F(s)}{s^n}$
Final Value Theorem	$\lim_{t \to \infty} f(t)$	$\lim_{s \to 0} sF(s)$
Initial Value Theorem	$\lim_{t \to 0} f(t)$	$\lim_{s \to \infty} sF(s)$
Time Delay	$\mathscr{L}[f(t - d)]$	$e^{-sd} F(s)$
Time Scaling	$\mathscr{L}[f(\frac{t}{\alpha})]$	$\alpha F(\alpha s)$
Frequency Scaling	$\alpha f(\alpha t)$	$\mathscr{L}^{-1}[F(\frac{s}{\alpha})]$
Complex Translation	$\mathscr{L}[e^{-\alpha t} f(t)]$	$F(s + \alpha)$
Multiplication	$\mathscr{L}[f(t) \times g(t)]$	$F(s) * G(s)$
Convolution	$\mathscr{L}[f(t) * g(t)]$	$F(s) \times G(s)$