A table of one-sided Laplace transforms

	Time domain ($t \geq 0$)	Laplace domain
1. unit impulse	$\delta(t)$	1
2. unit step	$u_{-1}(t)$	$\frac{1}{s}$
3. unit ramp	t	$\frac{1}{s^2}$
4. power of t	t^{n-1}	$\frac{(n-1)!}{s^n}$
5. exponential	$e^{\alpha t}$	$\frac{1}{s-\alpha}$
6. standard 1st-order step response	$K[1-e^{-t/\tau}]$	$\frac{K}{s(s\tau+1)}$
7. sinusoid	$\sin \omega t$	$\frac{\omega}{s^2+\omega^2}$
8. sinusoid	$\cos \omega t$	$\frac{s}{s^2+\omega^2}$
9. damped sinusoid $(0 < \zeta < 1)$	$\frac{\omega_n}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \sin(\omega_n \sqrt{1-\zeta^2} t)$	$\frac{\omega_n^2}{s^2+2\zeta\omega_n s+\omega_n^2}$
10. standard 2nd-order step response	$1 - \frac{1}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \sin(\omega_n \sqrt{1-\zeta^2} t + \mathrm{Cos}^{-1}\zeta)$	$\frac{\omega_n^2}{s(s^2+2\zeta\omega_n s+\omega_n^2)}$