Table of Common Taylor/Maclaurin Series

$$
\begin{aligned}
\frac{1}{1-t} &= \sum_{n=0}^{\infty} t^n = 1 + t + t^2 + t^3 + \dots \\
e^t &= \sum_{n=0}^{\infty} \frac{t^n}{n!} = 1 + t + \frac{t^2}{2!} + \frac{t^3}{3!} + \dots \\
\sin(t) &= \sum_{n=0}^{\infty} \frac{(-1)^n t^{2n+1}}{(2n+1)!} = t - \frac{t^3}{3!} + \frac{t^5}{5!} - \dots \\
\cos(t) &= \sum_{n=0}^{\infty} \frac{(-1)^n t^{2n}}{(2n)!} = 1 - \frac{t^2}{2!} + \frac{t^4}{4!} - \dots
\end{aligned}
$$

Table of Laplace Transforms

$f(t)$	$F(s) = \mathcal{L}\{f(t)\}$	$f(t)$	$F(s) = \mathcal{L}\{f(t)\}$
1. (a) $f'(t)$ (b) $f''(t)$	$sF(s) - f(0)$ $s^2F(s) - sf(0) - f'(0)$	7. $t^n, \ n = 1, 2, 3, \dots$	$\frac{n!}{s^{n+1}}$
2. $f(t-a)U(t-a)$ $= f(t-a)u_a(t), \ a \geq 0$	$e^{-as}F(s)$	8. $e^{at}t^n, \ n = 1, 2, 3, \dots$	$\frac{n!}{(s-a)^{n+1}}$
3. $g(t)U(t-a)$ $= g(t)u_a(t), \ a \geq 0$	$e^{-as}\mathcal{L}\{g(t+a)\}$	9. $\sin(bt)$	$\frac{b}{s^2+b^2}$
4. $u_a(t) = U(t-a), \ a \geq 0$	$\frac{e^{-as}}{s}$	10. $\cos(bt)$	$\frac{s}{s^2+b^2}$
5. $\delta_a(t) = \delta(t-a), \ a \geq 0$	e^{-as}	11. $e^{at}\sin(bt)$	$\frac{b}{(s-a)^2+b^2}$
6. e^{at}	$\frac{1}{s-a}$	12. $e^{at}\cos(bt)$	$\frac{s-a}{(s-a)^2+b^2}$