

Table of Laplace Transforms

$f(t) = \mathcal{L}^{-1}\{F(s)\}$	$F(s) = \mathcal{L}\{f(t)\}$
1. 1	$\frac{1}{s}, s > 0$
2. e^{at}	$\frac{1}{s-a}, s > a$
3. $t^n, n = \text{positive integer}$	$\frac{n!}{s^{n+1}}, s > 0$
4. $t^n e^{at}, n = \text{positive integer}$	$\frac{n!}{(s-a)^{n+1}}, s > a$
5. $\sin bt$	$\frac{b}{s^2+b^2}, s > 0$
6. $\cos bt$	$\frac{s}{s^2+b^2}, s > 0$
7. $e^{at} \sin bt$	$\frac{b}{(s-a)^2+b^2}, s > a$
8. $e^{at} \cos bt$	$\frac{s-a}{(s-a)^2+b^2}, s > a$
9. $u_c(t)$	$\frac{e^{-cs}}{s}, s > 0$
10. $u_c(t)f(t-c)$	$e^{-cs}F(s)$
11. $e^{ct}f(t)$	$F(s-c)$
12. $\delta(t-c)$	e^{-cs} when $c \geq 0$; 0 when $c < 0$
13. $f^{(n)}(t)$	$s^n F(s) - s^{n-1}f(0) - \dots - f^{(n-1)}(0)$
14. $(-t)^n f(t)$	$F^{(n)}(s)$
15. $\int_0^t f(t-\tau)g(\tau)d\tau$	$F(s)G(s)$