

Table of Laplace Transforms

$f(t)$	$F(s)$	Notes
1. 1	$\frac{1}{s} \quad s > 0$	Sect 6.1
2. e^{at}	$\frac{1}{s-a} \quad s > a$	Sect 6.1
3. $t^n, \quad n \text{ pos int}$	$\frac{n!}{s^{n+1}}, \quad s > 0$	Sect 6.1
4. $t^p, \quad p > -1$	$\frac{\Gamma(p+1)}{s^{p+1}}, \quad s > 0$	Sect 6.1
5. $\sin(at)$	$\frac{a}{s^2 + a^2}, \quad s > 0$	Sect 6.1
6. $\cos(at)$	$\frac{s}{s^2 + a^2}, \quad s > 0$	Sect 6.1
7. $\sinh(at)$	$\frac{a}{s^2 - a^2}, \quad s > a $	Sect 6.1
8. $\cosh(at)$	$\frac{s}{s^2 - a^2}, \quad s > a $	Sect 6.1
9. $e^{at} \sin(bt)$	$\frac{b}{(s-a)^2 + b^2}, \quad s > a$	Sect 6.1
10. $e^{at} \cos(bt)$	$\frac{s-a}{(s-a)^2 + b^2}, \quad s > a$	Sect 6.1
11. $t^n e^{at}, \quad n \text{ pos int}$	$\frac{n!}{(s-a)^{n+1}}, \quad s > a$	Sect 6.1
12. $u_c(t)$ or $u(t-c)$	$\frac{e^{-cs}}{s}$	Sect 6.3
13. $u_c(t)f(t-c)$	$e^{-cs}F(s)$	Sect 6.3
14. $e^{ct}f(t)$	$F(s-c)$	Sect 6.3
15. $f(ct)$	$\frac{1}{c}F\left(\frac{s}{c}\right), \quad c > 0$	Sect 6.3
16. $\int_0^t f(t-\tau)g(\tau) d\tau$	$F(s)G(s)$	Sect 6.6
17. $\delta(t-c)$	e^{-cs}	Sect 6.5
18. $f^{(n)}(t)$	$s^n F(s) - s^{n-1}f(0) - \dots - f^{(n-1)}(0)$	Sect 6.2
19. $(-t)^n f(t)$	$F^{(n)}(s)$	Sect 6.2