

Table of Laplace Transforms

| $f(t)$ | $F(s)$ |
|---|------------------------------------|
| 1 | $\frac{1}{s}, \quad s > 0$ |
| e^{at} | $\frac{1}{s-a}, \quad s > a$ |
| t^n ($n = \text{positive integer}$) | $\frac{n!}{s^{n+1}}, \quad s > 0$ |
| $\sin(at)$ | $\frac{a}{s^2 + a^2}, \quad s > 0$ |
| $\cos(at)$ | $\frac{s}{s^2 + a^2}, \quad s > 0$ |
| $e^{at}f(t)$ | $F(s-a), \quad s > a$ |
| $u(t-t_0)f(t-t_0)$ | $e^{-t_0s} \mathcal{L}[f(t)]$ |
| $u(t-t_0)f(t)$ | $e^{-t_0s} \mathcal{L}[f(t+t_0)]$ |
| $f'(t)$ | $sF(s) - f(0)$ |
| $f''(t)$ | $s^2F(s) - sf(0) - f'(0)$ |

(More formulas may be added as we go.)