

TABLE OF LAPLACE TRANSFORMS

$$\begin{aligned}
 L(f(t)) &= F(s) \\
 L(t^n) &= \frac{n!}{s^{n+1}} \\
 L(\sin at) &= \frac{a}{s^2 + a^2} \\
 L(\cos at) &= \frac{s}{s^2 + a^2} \\
 L(e^{at}) &= \frac{1}{s - a} \\
 L(e^{at} f(t)) &= F(s - a) \\
 L(u(t - a)f(t - a)) &= e^{-as}F(s) \\
 L(\delta_a(t)) &= e^{-as} \\
 L(-tf(t)) &= F'(s) \\
 L\left(\int_0^t f(\tau)d\tau\right) &= F(s)/s \\
 L(f^{(n)}) &= s^n F(s) - s^{n-1}f(0) - s^{n-2}f'(0) - \dots - sf^{n-2}(0) - f^{n-1}(0) \\
 L(\sin kt - kt \cos kt) &= \frac{2k^3}{(s^2 + k^2)^2} \\
 L(t \sin kt) &= \frac{2ks}{(s^2 + k^2)^2}
 \end{aligned}$$