Table B.1 *Selected Laplace Transforms*

$f(t)$	$F(s)$
$\delta(t)$ (unit impulse)	1
$u(t)$ (unit ~~impulse~~ step)	$\frac{1}{s}$
$tu(t)$	$\frac{1}{s^2}$
$t^n u(t)$	$\frac{n!}{s^{n+1}}$
$e^{-at}u(t)$	$\frac{1}{s+a}$
$te^{-at}u(t)$	$\frac{1}{(s+a)^2}$
$t^n e^{-at}u(t)$	$\frac{n!}{(s+a)^{n+1}}$
$(\sin\ bt)\ u(t)$	$\frac{b}{s^2+b^2}$
$(\cos\ bt)u(t)$	$\frac{s}{s^2+b^2}$
$(t\ \sin\ bt)u(t)$	$\frac{2bs}{(s^2+b^2)^2}$
$(t\ \cos\ bt)u(t)$	$\frac{s^2-b^2}{(s^2+b^2)^2}$
$(e^{-at}\ \sin\ bt)u(t)$	$\frac{b}{(s+a)^2+b^2}$
$(e^{-at}\cos\ bt)u(t)$	$\frac{(s+a)}{(s+a)^2+b^2}$
$Ae^{-at}\ \cos\ (bt+\theta)u(t)$	$\frac{(A/2)e^{j\theta}}{s+a-jb}+\frac{(A/2)e^{-j\theta}}{s+a+jb}=\frac{\text{first-degree numerator}}{(s+a)^2+b^2}$
$Ae^{-at}\ \sin\ (bt+\theta)u(t)$	$\frac{s+(a)}{(s+a)^2+b^2}$ $A=\frac{1}{b}\sqrt{(\alpha-a)^2+b^2}$ $\theta=\tan^{-1}\frac{b}{\alpha-a}$

should be α