Table 6.4.1 Laplace transforms

$f(t) = \mathcal{L}^{-1}\{F(s)\}$	$(\mathcal{L}f)(s) = F(s)$
$\alpha g_1(t) + \beta g_2(t)$	$\alpha G_1(s) + \beta G_2(s)$
$g'(t)$	$sG(s) - g(0)$
$g''(t)$	$s^2G(s) - sg(0) - g'(0)$
$g^{(n)}(t)$	$s^nG(s) - s^{n-1}g(0) \cdots - g^{(n-1)}(0)$
$(g_1 * g_2)(t) = \int_0^t g_1(t-\tau)g_2(\tau)\,d\tau$	$G_1(s)G_2(s)$
$\int_0^t g(\tau)\,d\tau$	$\frac{G(s)}{s}$
$-t \cdot g(t)$	$G'(s)$
$u_c(t)$	$\frac{e^{-cs}}{s}$
$g(t)u_c(t)$	$e^{-cs}\mathcal{L}\{g(t+c)\}$
$g(t-c)u_c(t)$	$e^{-cs}G(s)$
1	$\frac{1}{s}$
$\sin bt$	$\frac{b}{s^2+b^2}$
$\cos bt$	$\frac{s}{s^2+b^2}$
t^n	$\frac{n!}{s^{n+1}}$
e^{at}	$\frac{1}{s-a}$
$e^{at}\sin bt$	$\frac{b}{(s-a)^2+b^2}$
$e^{at}\cos bt$	$\frac{s-a}{(s-a)^2+b^2}$
t^ne^{at}	$\frac{n!}{(s-a)^{n+1}}$
$g(t)e^{at}$	$G(s-a)$
$t\sin bt$	$\frac{2bs}{(s^2+b^2)^2}$
$t\cos bt$	$\frac{s^2-b^2}{(s^2+b^2)^2}$
$\delta(t)$	1
$\delta(t-t_0)$	e^{-st_0}