MT255 – Analysis of Ordinary Differential Equations
First Semester Examination, June, 2000

Table of Laplace Transforms

$f(t)$	$F(s)$
1	$\frac{1}{s}$
e^{at}	$\frac{1}{s-a}$
t^n	$\frac{n!}{s^{n+1}}$
$\cos bt$	$\frac{s}{s^2+b^2}$
$\sin bt$	$\frac{b}{s^2+b^2}$
$e^{at}f(t)$	$F(s-a)$
$t\,f(t)$	$-\frac{d}{ds}F(s)$
$\frac{f(t)}{t}$, $\quad(\lim_{t\to 0+} f(t)/t \quad \text{exists})$	$\int_s^\infty F(\sigma)d\sigma$
$g(t)=\begin{cases} 0, & t<c, \\ f(t-c), & t>c. \end{cases} = f(t-c)u(t-c)$	$e^{-sc}F(s) \quad c>0$
$\int_0^t f(\tau)g(t-\tau)d\tau$	$F(s)G(s)$
$f(t+p)=f(t), \quad t>0$	$\frac{1}{1-e^{-ps}}\int_0^p e^{-st}f(t)\,dt$
$f^{(n)}(t)$	$s^nF(s)-s^{n-1}f(0)-s^{n-2}f'(0)-\ldots-f^{(n-1)}(0)$