

Math 2552, Midterm 3. Your initials: _____

Elementary Laplace Transforms

	$f(t)$	$\mathcal{L}\{f(t)\} = F(s)$
1.	1	$\frac{1}{s}$
2.	e^{at}	$\frac{1}{s-a}$
3.	t^n , n positive integer	$\frac{n!}{s^{n+1}}$
4.	t^p , $p > -1$	$\frac{\Gamma(p+1)}{s^{p+1}}$
5.	$\sin at$	$\frac{a}{s^2 + a^2}$
6.	$\cos at$	$\frac{s}{s^2 + a^2}$
7.	$\sinh at$	$\frac{a}{s^2 - a^2}$
8.	$\cosh at$	$\frac{s}{s^2 - a^2}$
9.	$e^{at} \sin bt$	$\frac{b}{(s-a)^2 + b^2}$
10.	$e^{at} \cos bt$	$\frac{s-a}{(s-a)^2 + b^2}$
11.	$t^n e^{at}$, n positive integer	$\frac{n!}{(s-a)^{n+1}}$
12.	$u_c(t)$	$\frac{e^{-cs}}{s}$
13.	$u_c(t)f(t-c)$	$e^{-cs}F(s)$
14.	$e^{ct}f(t)$	$F(s-c)$
15.	$\int_0^t f(t-\tau)g(\tau)d\tau$	$F(s)G(s)$
16.	$\delta(t-c)$	e^{-cs}
17.	$f^{(n)}(t)$	$s^n F(s) - s^{(n-1)}f(0) - \dots - f^{(n-1)}(0)$
18.	$t^n f(t)$	$(-1)^n F^{(n)}(s)$