

Appendix B. Table of Laplace transforms.  $L(f(t)) = F(s) = \int_0^{\infty} f(t)e^{-st} dt$

№	$f(t)$	$F(s)$	№	$f(t)$	$F(s)$
1)	1	$\frac{1}{s}$	6)	$e^{\alpha t} \cos \beta t$	$\frac{s - \alpha}{(s - \alpha)^2 + \beta^2}$
2)	$\frac{t^n}{n!}$	$\frac{1}{s^{n+1}}$	7)	$e^{\alpha t} \sin \beta t$	$\frac{\beta}{(s - \alpha)^2 + \beta^2}$
3)	$e^{\alpha t}$	$\frac{1}{s - \alpha}$	8)	$\frac{t^n}{n!} e^{\alpha t}$	$\frac{1}{(s - \alpha)^{n+1}}$
4)	$\cos \beta t$	$\frac{s}{s^2 + \beta^2}$	9)	$\cosh \beta t$	$\frac{s}{s^2 - \beta^2}$
5)	$\sin \beta t$	$\frac{\beta}{s^2 + \beta^2}$	10)	$\sinh \beta t$	$\frac{\beta}{s^2 - \beta^2}$

### Appendix C. Fourier transform

The Fourier transform  $F(w)$  of a function  $f(x)$  is  $F(w) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} f(x)e^{-iwx} dx$ .