Laplace-Transformation, Korrespondenzen

$F(p) = \int_0^\infty s(t)e^{-pt}\,dt$		$s(t) = \lim_{\omega\to\infty} \frac{1}{2\pi j} \int_{\sigma-j\omega}^{\sigma+j\omega} F(p)e^{pt}\,dp$
1	0	0 $\quad s(t) = \begin{cases} s(t) & \text{für } t \geq 0 \\ 0 & \text{für } t < 0 \end{cases}$
2	1	$\delta(t)$ $\quad \downarrow$
3	$\frac{1}{p}$	1
4	$\frac{1}{p^2}$	t $\quad \downarrow$
5	$\frac{1}{p^n} \quad n > 0$	$\frac{t^{n-1}}{(n-1)!}$
6	$\frac{1}{(p-a)}$	e^{at} $\quad \downarrow$
7	$\frac{1}{[p(p-a)]}$	$\frac{1}{a}(e^{at}-1)$
8	$\frac{1}{[p(p+a)]}$	$\frac{1}{a}(1-e^{-at})$ $\quad \downarrow$
9	$\frac{a}{(p^2+a^2)}$	$\sin(at)$
10	$\frac{p}{(p^2+a^2)}$	$\cos(at)$ $\quad \downarrow$
11	$\frac{a}{(p^2-a^2)}$	$\sinh(at)$
12	$\frac{p}{(p^2-a^2)}$	$\cosh(at)$ $\quad \downarrow$
13	$\frac{1}{[p(p^2+a^2)]}$	$\frac{1}{a^2}(1-\cos(at))$
14	$\frac{1}{[p(p^2-a^2)]}$	$\frac{1}{a^2}(\cosh(at)-1)$ $\quad \downarrow$
15	$\frac{1}{[(p-a)(p-b)]}$	$\frac{(e^{bt}-e^{at})}{(b-a)}$
16	$\frac{1}{(p-a)^2}$	$t \cdot e^{at}$ $\quad \downarrow$
17	$\frac{p}{[(p-a)(p-b)]}$	$\frac{(be^{bt}-ae^{at})}{(b-a)}$
18	$\frac{1}{p^2+2ap+b^2}$	$\frac{1}{2W}(e^{p_1 t}-e^{p_2 t}) = \frac{1}{\omega}e^{-at}\sin(\omega t)$ $p_{1,2} = -a \pm W = -a \pm j\omega$ $W = \sqrt{a^2-b^2} = j\omega;\ \omega = \sqrt{b^2-a^2}$
19	$\frac{p}{p^2+2ap+b^2}$	$\frac{1}{2W}(p_1 e^{p_1 t}-p_2 e^{p_2 t}) = e^{-at}(\cos(\omega t) - \frac{a}{\omega}\cdot\sin(\omega t))$ W, p_1, p_2 wie 18)