Laplaceova transformace

Tabulka vzorů a obrazů pro Laplaceovu transformaci

Vzor, tj. $f(x)$ pro $x>0$	Obraz, tj. $\mathcal{L}[f](p)$	$\operatorname{Re} p \geq c$, kde $c > \dots$	pro
1	$\frac{1}{p}$	0	
x^α	$\frac{\Gamma(\alpha+1)}{p^{\alpha+1}}$	0	$\alpha > -1$
x^n	$\frac{n!}{p^{n+1}}$	0	$n \in \mathbb{N}$
$e^{\alpha x}$	$\frac{1}{p-\alpha}$	$\operatorname{Re}\alpha$	$\alpha \in \mathbb{C}$
$\sin(\alpha x)$	$\frac{\alpha}{p^2+\alpha^2}$	$\lvert\operatorname{Im}\alpha\rvert$	$\alpha \in \mathbb{C}$
$\cos(\alpha x)$	$\frac{p}{p^2+\alpha^2}$	$\lvert\operatorname{Im}\alpha\rvert$	$\alpha \in \mathbb{C}$
$\sinh(\alpha x)$	$\frac{\alpha}{p^2-\alpha^2}$	$\operatorname{Re}\alpha$	$\alpha \in \mathbb{C}$
$\cosh(\alpha x)$	$\frac{p}{p^2-\alpha^2}$	$\operatorname{Re}\alpha$	$\alpha \in \mathbb{C}$
$x^n e^{\alpha x}$	$\frac{n!}{(p-\alpha)^{n+1}}$	$\operatorname{Re}\alpha$	$\alpha \in \mathbb{C},\ n \in \mathbb{N}$
$x^n \sin(\alpha x)$	$\frac{\operatorname{Im}(p+i\alpha)^{n+1}}{(p^2+\alpha^2)^{n+1}}$	$\lvert\operatorname{Im}\alpha\rvert$	$\alpha \in \mathbb{C},\ n \in \mathbb{N}$
$x^n \cos(\alpha x)$	$\frac{\operatorname{Re}(p+i\alpha)^{n+1}}{(p^2+\alpha^2)^{n+1}}$	$\lvert\operatorname{Im}\alpha\rvert$	$\alpha \in \mathbb{C},\ n \in \mathbb{N}$
$e^{\lambda x}\sin(\alpha x)$	$\frac{\alpha}{(p-\lambda)^2+\alpha^2}$	$\operatorname{Re}\lambda + \lvert\operatorname{Im}\alpha\rvert$	$\lambda, \alpha \in \mathbb{C}$
$e^{\lambda x}\cos(\alpha x)$	$\frac{p-\lambda}{(p-\lambda)^2+\alpha^2}$	$\operatorname{Re}\lambda + \lvert\operatorname{Im}\alpha\rvert$	$\lambda, \alpha \in \mathbb{C}$

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