

Vlastnosti a slovník Z-transformace

Obraz	Předmět
$F(z) = \mathcal{Z}[f_n] = \sum_{n=0}^{\infty} \frac{f_n}{z^n}$	$f_n = \mathcal{Z}^{-1}[F(z)]$
$\frac{1}{z^k} F(z)$	f_{n-k}
$z^k F(z) - z^k \sum_{m=0}^{k-1} \frac{f_m}{z^m}$	f_{n+k}
$F\left(\frac{z}{a}\right)$	$a^n f_n \quad (a \neq 0)$
$-zF'(z)$	nf_n
$(z-1)F(z) - zf_0$	Δf_n
$(z-1)^k F(z) - z \sum_{m=0}^{k-1} (z-1)^{k-m-1} \Delta^m f_0$	$\Delta^k f_n$
$\frac{F(z)}{z-1}$	$\sum_{k=0}^{n-1} f_k$
$\int_z^{\infty} \frac{F(\xi)}{\xi} d\xi$	$\frac{f_n}{n} \quad (n \geq 1)$
$F(z) \cdot G(z)$	$f_n * g_n = \sum_{k=0}^n f_k g_{n-k}$
$\frac{z}{z-1}$	1
$\frac{z}{z-a}$	a^n
$\frac{z}{(z-1)^2}$	n
$\frac{az}{(z-a)^2}$	na^n
$\frac{z(z+1)}{(z-1)^3}$	n^2
$\frac{z}{z^2+1}$	$\sin n\frac{\pi}{2}$
$\frac{z^2}{z^2+1}$	$\cos n\frac{\pi}{2}$
$\frac{z \sin b}{z^2 - 2z \cos b + 1}$	$\sin bn$
$\frac{z(z - \cos b)}{z^2 - 2z \cos b + 1}$	$\cos bn$
$\frac{az \sin b}{z^2 - 2az \cos b + a^2}$	$a^n \sin bn$
$\frac{z(z - a \cos b)}{z^2 - 2az \cos b + a^2}$	$a^n \cos bn$
$\frac{z}{(z-1)^{k+1}}$	$\binom{n}{k}$
$\frac{a^k z}{(z-a)^{k+1}}$	$\binom{n}{k} a^n$