Tabla de propiedades de la Transformada z

Dominio del tiempo, $x[n]$	Dominio de la variable z, $X(z)$	ROC
$ax_1[n] + bx_2[n]$	$aX_1(z) + bX_2(z)$	$R' = R_1 \cap R_2$
$x[n - n_0]$	$z^{-n_0} X(z)$	$R' = R$
$e^{j\omega_0 n} x[n]$	$X(e^{-j\omega_0} z)$	R
$z_0^n x[n]$	$X\left(\dfrac{z}{z_0}\right)$	$z_0 R$
$a^n x[n]$	$X(a^{-1}z)$	$R' = aR$
$x^*[n]$	$X^*(z^*)$	R
$x_1[n] * x_2[n]$	$X_1(z)X_2(z)$	At least the intersection of R_1 and R_2
$x[n] - x[n-1]$	$(1 - z^{-1})X(z)$	At least the intersection of R and $|z| > 0$
$\displaystyle\sum_{k=-\infty}^{n} x[k]$	$\dfrac{1}{1 - z^{-1}} X(z)$	At least the intersection of R and $|z| > 1$
$nx[n]$	$-z\dfrac{dX(z)}{dz}$	R

Tabla 1. Propiedades de la Transformada de z

Tabla de Transformadas z

Dominio del tiempo, $x[n]$	Dominio de la variable z, $X(z)$	ROC
$\delta[n]$	1	All z
$u[n]$	$\dfrac{1}{1-z^{-1}}$	$|z| > 1$
$-u[-n-1]$	$\dfrac{1}{1-z^{-1}}$	$|z| < 1$
$\delta[n-m]$	z^{-m}	All z except
		0 (if $m > 0$) or
		∞ (if $m < 0$)
$\alpha^n u[n]$	$\dfrac{1}{1-\alpha z^{-1}}$	$|z| > |\alpha|$
$-\alpha^n u[-n-1]$	$\dfrac{1}{1-\alpha z^{-1}}$	$|z| < |\alpha|$
$n\alpha^n u[n]$	$\dfrac{\alpha z^{-1}}{(1-\alpha z^{-1})^2}$	$|z| > |\alpha|$
$-n\alpha^n u[-n-1]$	$\dfrac{\alpha z^{-1}}{(1-\alpha z^{-1})^2}$	$|z| < |\alpha|$
$[\cos(\Omega_0 n)]u[n]$	$\dfrac{1-[\cos\Omega_0]z^{-1}}{1-[2\cos\Omega_0]z^{-1}+z^{-2}}$	$|z| > 1$
$[\sin(\Omega_0 n)]u[n]$	$\dfrac{[\sin\Omega_0]z^{-1}}{1-[2\cos\Omega_0]z^{-1}+z^{-2}}$	$|z| > 1$
$[r^n \cos(\Omega_0 n)]u[n]$	$\dfrac{1-[r\cos\Omega_0]z^{-1}}{1-[2r\cos\Omega_0]z^{-1}+r^2 z^{-2}}$	$|z| > r$
$[r^n \sin(\Omega_0 n)]u[n]$	$\dfrac{[r\sin\Omega_0]z^{-1}}{1-[2r\cos\Omega_0]z^{-1}+r^2 z^{-2}}$	$|z| > r$

Tabla 2. Pares de la Transformada z