**Transformadas unilaterales para diferentes señales**

|  |  |  |
| --- | --- | --- |
| **Propiedad** | **Señal** | **Transformada Z unilateral** |
| Desplazamiento a la derecha | $$x\left[n-1\right]$$ | $$z^{-1}X\left(z\right)+x\left[-1\right]$$ |
| $$x\left[n-2\right]$$ | $$z^{-2}X\left(z\right)+z^{-1}x\left[-1\right]+x\left[-2\right]$$ |
| $$x\left[n-N\right]$$ | $$z^{-2}X\left(z\right)+z^{-1}x\left[-1\right]+x\left[-2\right]+…x\left[-N\right]$$ |
| Desplazamiento a la izquierda | $$x\left[n+1\right]$$ | $$zX\left(z\right)-zx\left[0\right]$$ |
| $$x\left[n+2\right]$$ | $$z^{2}X\left(z\right)-z^{2}x\left[0\right]-zx\left[1\right]$$ |
| $$x\left[n+N\right]$$ | $$z^{N}X\left(z\right)-z^{N}x\left[0\right]-z^{N-1}x\left[1\right]+…zx\left[N-1\right]$$ |
| Conmutación periódica | $$x\_{p}\left[n\right]u\left[n\right]$$ | $$\frac{X\_{1}(z)}{1-z^{-N}}$$ |
| Teorema del valor inicial | $$x\left[o\right]=\lim\_{z\to \infty }X(z)$$ |
| Teorema del valor final | $$\lim\_{n\to \infty }x\left[n\right]=\lim\_{z\to 1}\left(z-1\right)X(z)$$ |