

Table of Z Transform Properties

[Laplace and Z Transforms](#)
[Laplace Properties](#)
[Z Xform Properties](#)
[Link to hortened 2-page pdf of Z Transforms and Properties](#)

Property Name	Illustration
Linearity	$af_1[k] + bf_2[k] \xleftrightarrow{\mathcal{Z}} aF_1(z) + bF_2(z)$
Shift Left by 1	$f[k + 1] \xleftrightarrow{\mathcal{Z}} zF(z) - zf[0]$
Shift Left by 2	$f[k + 2] \xleftrightarrow{\mathcal{Z}} z^2F(z) - z^2f[0] - zf[1]$
Shift Left by n	$f[k + n] \xleftrightarrow{\mathcal{Z}} z^n F(z) - z^n \sum_{k=0}^{n-1} f[k]z^{-k}$ $= z^n \left(F(z) - \sum_{k=0}^{n-1} f[k]z^{-k} \right)$
Shift Right by n	$f[k - n] \xleftrightarrow{\mathcal{Z}} z^{-n}F(z)$
Multiplication by time	$kf[k] \xleftrightarrow{\mathcal{Z}} -z \frac{dF(z)}{dz}$
Convolution	$f_1[k] * f_2[k] \xleftrightarrow{\mathcal{Z}} F_1(z)F_2(z)$
Initial Value Theorem	$f[0] = \lim_{z \rightarrow \infty} F(z)$
Final Value Theorem	$\lim_{k \rightarrow \infty} f[k] = \lim_{z \rightarrow 1} (z - 1)F(z)$

[References](#)

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 Erik Cheever Department of Engineering Swarthmore College