

Table of Z Transforms	
$(x_k)_{k=0}^{\infty}$	$\mathcal{Z} [(x_k)_{k=0}^{\infty}]$
$x_k = \delta_k = \begin{cases} 1 & k = 0 \\ 0 & k > 0 \end{cases}$ (unit pulse)	1
$x_k = r^k$	$\frac{z}{z - r}$
$x_k = kr^{k-1}$	$\frac{z}{(z - r)^2}$

First shift theorem (delaying): if $\mathcal{Z}[(x_k)] = X(z)$ then

$$\mathcal{Z}[(x_{k-k_0})] = \frac{1}{z^{k_0}} X(z)$$

where $x_k = 0$ for $k < 0$.

Second shift theorem (advancing): if $\mathcal{Z}[(x_k)] = X(z)$ then

$$\mathcal{Z}[(x_{k+1})] = zX(z) - zx_0$$

and

$$\mathcal{Z}[(x_{k+2})] = z^2X(z) - z^2x_0 - zx_1$$