







Discrete Fourier Series			Discrete Fourier Transform		
Property	N-periodic sequence	N-periodic DFS	Property	N-point sequence	N-point DFT
	$\widetilde{x}[n]$ $\widetilde{x}_1[n], \widetilde{x}_2[n]$	$\overline{X}[k]$ $\overline{X}_1[k], \overline{X}_2[k]$		x[n] $x_1[n], x_2[n]$	$X[k] = X_1[k], X_2[k]$
Linearity	$a\widetilde{x}_1[n] + b\widetilde{x}_2[n]$	$a\widetilde{X}_1[k] + b\widetilde{X}_2[k]$	Linearity	$ax_1[n] + bx_2[n]$	$aX_1[k] + bX_2[k]$
Duality	$\widetilde{X}[n]$	$N \tilde{x}[-k]$	Duality	X[n]	$N x[((-k))_{N}]$
Time Shift	$\tilde{x}[n-m]$	$W^{tn}_{\kappa}\widetilde{X}[k]$	Circular Time Shift	$x[((n-m))_{N}]$	$W_N^{\lambda w} X[k]$
Frequency Shift	$W_N^{-ic} \overline{x}[n]$	$\widetilde{X}[k-l]$	Circular Frequency Shift	$W_N^{\rightarrow b}x[n]$	$X[((k-l))_N]$
Periodic Convolution	$\sum_{n=0}^{N-1}\widetilde{x}_1[m]\widetilde{x}_2[n-m]$	$\widetilde{X}_1[k]\widetilde{X}_2[k]$	Circular Convolution	$\sum_{m=0}^{N-1} x_1[m] x_2[((n-m))_N]$	$X_1[k]X_2[k]$
Iultiplication	$\widetilde{x}_1[n]\widetilde{x}_2[n]$	$\frac{1}{N}\sum_{l=0}^{N-1} \overline{X}_1[l]\overline{X}_1[k-l]$	Multiplication	$x_1[n]x_2[n]$	$\frac{1}{N}\sum_{l=0}^{N-1}X_1[l]X_2[l((k-l))_N]$
Complex Conjugation	$\bar{x}^*[n]$	$\widetilde{X}^*[-k]$	Complex Conjugation	x*[n]	$X^{*}[((-k))_{N}]$





































































































