Table 1: Table of z-Transforms (we consider all functions (signals) as defined only on $t \geq 0$)

No	$f[n]$	$F[z]$
1	$\delta[n-j]$	z^{-j}
2	$\mathbb{1}[n]$	$\dfrac{z}{z-1}$
3	$n\mathbb{1}[n]$	$\dfrac{z}{(z-1)^2}$
4	$n^2\mathbb{1}[n]$	$\dfrac{z(z+1)}{(z-1)^3}$
5	$n^3\mathbb{1}[n]$	$\dfrac{z(z^2+4z+1)}{(z-1)^4}$
6	$\gamma^{k-1}\mathbb{1}[n-1]$	$\dfrac{1}{z-\gamma}$
7	$\gamma^n\mathbb{1}[n]$	$\dfrac{z}{z-\gamma}$
8	$k\gamma^n\mathbb{1}[n]$	$\dfrac{\gamma z}{(z-\gamma)^2}$
9	$n^2\gamma^n\mathbb{1}[n]$	$\dfrac{\gamma z(z+\gamma)}{(z-\gamma)^3}$
10	$\dfrac{n(n-1)(n-2)\cdots(n-m+1)}{\gamma^m m!}\gamma^n\mathbb{1}[n]$	$\dfrac{z}{(z-\gamma)^{m+1}}$
11a	$\lvert\gamma\rvert^n \cos\beta n\mathbb{1}[n]$	$\dfrac{z(z-\lvert\gamma\rvert\cos\beta)}{z^2-(2\lvert\gamma\rvert\cos\beta)z+\lvert\gamma\rvert^2}$
11b	$\lvert\gamma\rvert^n \sin\beta n\mathbb{1}[n]$	$\dfrac{z\lvert\gamma\rvert\sin\beta}{z^2-(2\lvert\gamma\rvert\cos\beta)z+\lvert\gamma\rvert^2}$
12a	$r\lvert\gamma\rvert^n \cos(\beta n+\theta)\mathbb{1}[n]$	$\dfrac{rz[z\cos\theta-\lvert\gamma\rvert\cos(\beta-\theta)]}{z^2-(2\lvert\gamma\rvert\cos\beta)z+\lvert\gamma\rvert^2}$
12b	$r\lvert\gamma\rvert^n \cos(\beta n+\theta)\mathbb{1}[n] \qquad \gamma=\lvert\gamma\rvert e^{j\beta}$	$\dfrac{(0.5re^{j\theta})z}{z-\gamma}+\dfrac{(0.5re^{-j\theta})z}{z-\gamma^*}$
12c	$r\lvert\gamma\rvert^n \cos(\beta n+\theta)\mathbb{1}[n]$	$\dfrac{z(As+B)}{z^2+2az+\lvert\gamma\rvert^2}$
	$r=\sqrt{\frac{A^2\lvert\gamma\rvert^2+B^2-2AaB}{\lvert\gamma\rvert^2-a^2}}$	
	$\beta=\cos^{-1}\frac{-a}{\lvert\gamma\rvert},\ \theta=\tan^{-1}\frac{Aa-B}{A\sqrt{\lvert\gamma\rvert^2-a^2}}$	

Table 2: Table of z-Transforms Properties

Operation	$f[n]$	$F[z]$
Addition	$f_1[n] + f_2[n]$	$F_1[z] + F_2[z]$
Scalar multiplication	$af[n]$	$aF[z]$
Right-shift	$f[n-m]u[n-m]$	$\frac{1}{z^m}F[z]$
	$f[n-m]\mathbb{1}[n]$	$\frac{1}{z^m}F[z] + \frac{1}{z^m}\sum_{k=1}^{m} f[-k]z^n$
Left-shift	$f[n+m]\mathbb{1}[n]$	$z^m F[z] - z^m \sum_{k=0}^{m-1} f[n]z^{-k}$
Multiplication by γ^n	$\gamma^n f[n]\mathbb{1}[n]$	$F\left[\frac{z}{\gamma}\right]$
Multiplication by k	$kf[n]\mathbb{1}[n]$	$-z\frac{d}{dz}F[z]$
Time Convolution	$f_1[n] * f_2[n]$	$F_1[z]F_2[z]$
Frequency Convolution	$f_1[n]f_2[n]$	$\frac{1}{2\pi j}\oint F_1[u]F_2\left[\frac{z}{u}\right]u^{-1}du$