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 ***Z –Transform***

•The z transform is an important digital signal processing tool for describing and analyzing digital systems.

•It also supports the techniques for digital filter design and frequency analysis of digital signals.

•It takes a signal from the time domain to a frequency domain called the z domain.

•The z transform for a digital signal x[n] is defined as



where z is the complex variable.

•The z transform for causal signals is



It is referred to as a one-sided z-transform or a unilateral transform.

Example-1: Determine the z-transform of the following signals.

a) x[n] = δ[n]

solution

𝑋(𝑧)= $\sum\_{0}^{\infty }δ(n)z^{-m}$ =𝛿[0]=1

ROC: entire 𝑧 plane







***Examples :***























