

DFT AND IDFT

Discrete Fourier Transform (DFT):

The Discrete Fourier Transform (DFT) is a mathematical technique used to convert a finite sequence of equally spaced time-domain signals into its frequency components. It allows us to analyze the frequency content of discrete signals, revealing the amplitude and phase of each frequency. DFT is widely used in signal processing, communications, and data analysis because it helps transform complex time-domain behavior into a simpler frequency-domain representation.

Inverse Discrete Fourier Transform (IDFT):

The Inverse Discrete Fourier Transform (IDFT) converts a sequence of frequency-domain data back into the time domain. It reconstructs the original signal from its frequency components, reversing the transformation performed by the DFT. This is crucial for applications where signals are processed or filtered in the frequency domain and then need to be returned to their original form for further use or analysis.