PROPERTIES OF DFT

1. ***Convolution*:**
In signal processing, convolution is a mathematical operation used to combine two signals to produce a third signal. It expresses how the shape of one signal is modified by another. Convolution plays a key role in systems that involve filtering or signal processing.

2. *Linearity*:
A system is linear if it satisfies two properties: additivity and homogeneity. In simple terms, this means that the output of a linear system to a combination of inputs is the same as the combination of the outputs for those inputs, preserving the structure of input relationships.

3. *Multiplication*:
In the context of signals, multiplication often refers to pointwise (element-wise) multiplication of two sequences or signals. In the frequency domain, it corresponds to the convolution of two signals in the time domain, as per the convolution theorem.

4. *Parseval's Property of DFT*:
Parseval’s theorem states that the total energy of a signal in the time domain is equal to the total energy in the frequency domain. This property is significant in signal processing as it allows for energy conservation when transforming between time and frequency representations