

PDSi27APR2021

Lecture # 19

$$x[m] = \frac{1}{N} \sum_{l=0}^{N-1} x[l] W_N^{-lm} \quad (\text{IDFT})$$

(Note: '1' in numerator is circled in red)

$$X[k] = \sum_{l=0}^{N-1} x[l] W_N^{lk} \quad (\text{DFT})$$

$$j(a + jb)^* = j(a - jb) = b + ja$$

$$x[m] = \frac{j}{N} \sum_{l=0}^{N-1} j^* x[l] W_N^{-lm}$$

$$= \frac{j}{N} \left(\sum_{l=0}^{N-1} j X^*[l] W_N^{lm} \right)^*$$

DFT



