Corplex conjugate?

$$\begin{aligned} & (-\frac{2}{2} = (1, \omega^{i}, \omega^{2i}, ..., \omega^{(N-1)i}) \cdot (1, \omega^{i}, \omega^{2i}, ..., \omega^{(N-1)i}) \\ & = (-1 + (e^{2\pi i/N})^{i} (e^{2\pi i/N})^{j} + (e^{2\pi i/N})^{2i} (e^{2\pi i/N})^{2i} + ... \\ & = (-1 + e^{-2\pi/N}) + e^{-4\pi/N} + ... + e^{-(N-1)^{2}\pi/N} \\ & = 44 &$$

2.
$$(e^{-2\pi i/N})^{\frac{1}{2}N} = e^{-i\pi} = -1 \sqrt{\frac{1}{2}}$$

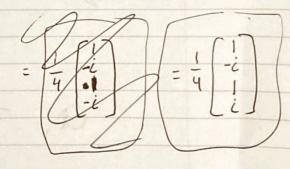
3.
$$F_3 = \begin{bmatrix} 1 & 1 & 1 \\ 1 & i & i^2 \\ 1 & i^2 & i^4 \end{bmatrix}$$
 $\Omega_3 = \begin{bmatrix} 1 & 1 & 1 \\ 1 & -i & -i^2 \\ 1 & -i^2 & -i^4 \end{bmatrix}$

$$R_3 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$$

in in

III -X

$$C = \frac{1}{H} \begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & i - i^{2} & i^{2} \\ 1 & -i^{2} & i^{2} & i^{2} \\ 1 & -i^{2} & i^{2} & i^{2} \end{bmatrix} \begin{bmatrix} 0 & 1 & 1 \\ 0 & -i & 1 \\ 0 & 0 & -i^{2} \\ 0 & 0 & -i^{2} \end{bmatrix} = \begin{bmatrix} 1 & 1 & 1 \\ 1 & -i & 1 \\ 1 & -i & 1 \end{bmatrix}$$



$$F_{c} = \begin{cases} \begin{pmatrix} 1 & 1 & 1 \\ 1 & i & i^{2} \\ 1 & i^{2} & i^{2} \\ 1 & i^{3} & i^{4} & i^{4} \\ 1 & i^{2} & i^{4} & i^{4} \\ 1 & i^{2} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4} & i^{4} & i^{4} \\ 1 & i^{4} & i^{4$$

$$\int_{\Pi}^{\pi} = \int_{\pi}^{\pi} + \int_{\pi}^{\pi} + \int_{\pi}^{\pi} + \int_{\pi}^{\pi}$$

$$\int_{\mathcal{T}}^{\mathcal{T}} f(x) \cos(x) = \int_{\mathcal{T}}^{\mathcal{T}} \cos(x)$$

8. A-Q QQ'x = Ix. since QQ'=I. Edtary the forset of a a , a x + ... BOTAZ From 1,5 #5 on p.29 tlan N pieves = 0!