

14)  $307306$

$$\begin{matrix} 7 & 3 & 0 & 6 \\ a_0 & a_1 & a_2 & a_3 \end{matrix}$$

$$A(x) = 7 + 3x + 0x^2 + 6x^3$$

$$A_3 = A(\omega^3) = A(-i) = 7 - 3i + 6i = 7 + 3i$$

$$A_1 = A(\omega) = A(i) = 7 + 3i + 0(-1) + (-6i) = 7 - 3i$$

$$\omega_N = e^{i\frac{2\pi}{N}}$$

$$A_k = \sum_{n=0}^{N-1} a_n \omega_N^{kn}$$

$$\begin{matrix} n=2 \\ n=3 \end{matrix}$$

$$1 \quad -1$$

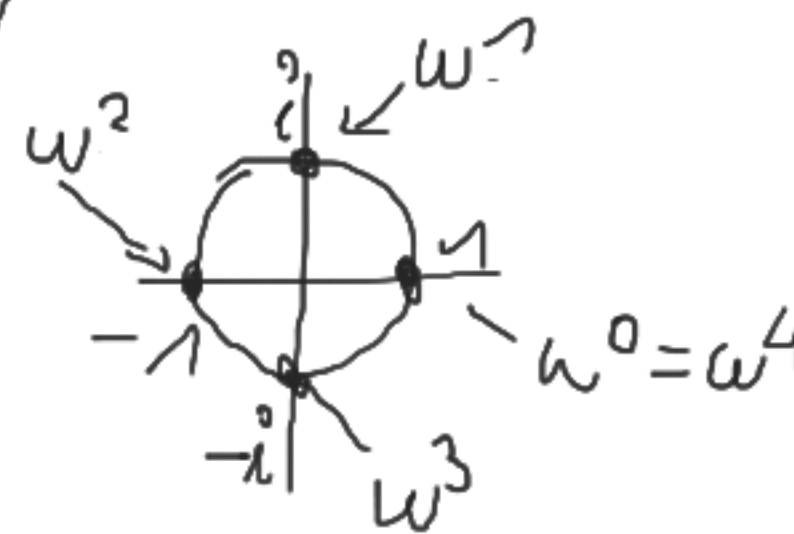
$$1; \frac{-1+i\sqrt{3}}{2}; \frac{-1-i\sqrt{3}}{2}$$

$$n=4$$

$$1; -1; i; -i$$

$$(-i) \cdot (-i) = i^2 = -1$$

$$(-1) \cdot (-i) = i$$



$$\omega_n^n = 1$$

$$\begin{aligned} A_0 &= a_0 \cdot \omega^{0 \cdot 0} + a_1 \cdot \omega^{0 \cdot 1} + a_2 \cdot \omega^{0 \cdot 2} + a_3 \cdot \omega^{0 \cdot 3} = \\ &= 7 \cdot 1 + 3 \cdot 1 + 0 \cdot 1 + 6 \cdot 1 = 16 \end{aligned}$$

$$\begin{aligned} A_1 &= a_0 \cdot \omega^{1 \cdot 0} + a_1 \cdot \omega^{1 \cdot 1} + a_2 \cdot \omega^{1 \cdot 2} + a_3 \cdot \omega^{1 \cdot 3} = \\ &= 7 \cdot 1 + 3 \cdot i + 0 \cdot (-1) + 6 \cdot (-i) = 7 - 3i \end{aligned}$$

$$\begin{aligned} A_2 &= (a_0 \cdot \omega^{2 \cdot 0}) + (a_1 \cdot \omega^{2 \cdot 1}) + (a_2 \cdot \omega^{2 \cdot 2}) + (a_3 \cdot \omega^{2 \cdot 3}) = \\ &= (7) + (-3) + (0) + (-6) = -2 \end{aligned}$$

$$(A_0, A_1, A_2, A_3) \text{ --- DTF}$$

$(9 \ 24)$   
 $(1 \ 2 \ 3) \ (4) \ (7) \ (10) \ (21) \ (22 \ 23) \ (24) \ (25) \ (26) \ (27 \ 28) \ (29) \ (30)$

