

• تمرین 01:

•  $z_0^{15} \quad z_0^3 \quad z_0^2 \quad z_0 = \frac{5+3i\sqrt{3}}{1-2i\sqrt{3}}$  - (1)

:  $\mathbb{C}$  - (2)

•  $(E_3): z + 3\bar{z} - (2+i\sqrt{3})|z| = 0 \quad (E_2): z^2 + 2|z|^2 - 3 = 0 \quad (E_1): z^2 + 2i\bar{z} - 6 = 0$

$u^4 \quad u^4 \quad u^2 \quad u = \sqrt{2-\sqrt{2}} - i\sqrt{2+\sqrt{2}}$  - (3)

•  $u$

:  $n$  - (4)

•  $(3): (\sqrt{3}+i)^n \in i\mathbb{R}^* \quad (2): (\sqrt{3}+i)^n \in \mathbb{R}_-^* \quad (1): (\sqrt{3}+i)^n \in \mathbb{R}$

•  $P(z) = (z^2 + 3z)^2 + (3z + 5)^2 \quad \mathbb{C}$  - (5)

$P(z)$  أ

$(E'): P(z) = 0$  :  $(E): z^2 + 3(1+i)z + 5i = 0$  :  $\mathbb{C}$  - ب

$P(z)$  - ج

•  $(E''): z^3 - 2z^2 - iz + 3 - i = 0$  :  $\mathbb{C}$  - (6)

$(E'')$

•  $G$

• تمرین 02:

•  $\sin\left(\frac{5\pi}{12}\right) \quad \cos\left(\frac{5\pi}{12}\right) \quad z_0 = \frac{1+i}{\sqrt{3}-i}$  - (1)

$z_2 = \frac{\sqrt{3}+i}{4} \quad z_1 = \frac{1-i\sqrt{3}}{4}$  - (2)

•  $U_2 = z_1 - z_2 \quad U_1 = z_1 + z_2$

• تمرین 03:

•  $(O, \vec{e}_1, \vec{e}_2) \quad (P)$

:  $(P) \quad z' = \frac{z-3}{z-2i}$  :  $\mathbb{C} - \{2i\}$   $z$  - (1)

$(\Gamma_3) = \{M(z) \in (P) / |z'| = 1\} \quad (\Gamma_2) = \{M(z) \in (P) / z' \in i\mathbb{R}\} \quad (\Gamma_1) = \{M(z) \in (P) / z' \in \mathbb{R}\}$

:  $(P) \quad z'' = \frac{2z-i}{z-z}$  :  $\mathbb{C} - \mathbb{R}$   $z$  - (2)

•  $(\Sigma_2) = \{M(z) \in (P) / |z''| = 1\} \quad (\Sigma_1) = \{M(z) \in (P) / z'' \in i\mathbb{R}\}$

$P(-3i) \quad N(i\bar{z}) \quad M(z) \quad (P) \quad M(z) \quad (\Sigma)$  - (3)