3.100
ק8

$$\begin{array}{l} z^3-(1+4i)z^2-(3-4i)z+3 \;\big|\; z-i \\ \text{quotient: } z^2-(1+3i)z+3i \\ \underline{z^3-z^2 i} \\ (-1-3i)z^2-(3-4i)z+3 \\ \underline{(-1-3i)z^2+(i+3)z} \\ 3iz+3 \\ \underline{3iz+3} \\ = = \end{array}$$

השורשים של

$$z^2-(1+3i)z+3i=0$$

$$z_{1,2}=\frac{(1+3i)\pm\sqrt{1+6i-9-12i}}{2}=\frac{(1+3i)\pm\sqrt{-6i-8}}{2}$$

נסמן $x+iy$ כשורש של $\sqrt{-6i-8}$

$$x+iy=\sqrt{-6i-8}$$

$$x^2-y^2+2xyi=-6i-8 \rightarrow \begin{cases} x^2-y^2=-8 \\ 2xy=-6 \rightarrow x=\frac{-3}{y} \end{cases} \rightarrow \frac{9}{y^2}-y^2=-8$$

$$\boxed{y=-3,\ x=1} \quad \text{או} \quad \boxed{y=3,\ x=-1}$$

$$z_{1,2}=\frac{1+3i\pm(1-3i)}{2}= \begin{cases} 1 \\ 3i \end{cases}$$

3.100
ק9

ראה 3.36 [illegible] 2