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ACHA 4000 / ACMA 4006

Q2.

i) $z_1 + z_3$

$$\begin{array}{r} 3 + 7j \\ - 4 - j \\ \hline -1 + 6j \end{array}$$

ii)

$z_1 - z_3$

$$\begin{array}{r} (3 + 7j) - (-4 - j) = 3 + 7j + 4 + j \\ \hline 7 + 8j \end{array}$$

iii) $\frac{z_1}{z_2} = \frac{(3 + 7j)}{(-4 - j)} \times \frac{(-4 + j)}{(-4 + j)}$

$$= \frac{-12 + 3j - 21j + 7j^2}{16 - 4j + 4j - j^2}$$

$$\frac{-19 - 18j}{16 + j}$$

$$= \frac{-19}{16} + \frac{-18}{16}j$$