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Analytical methods exam 18/5/21

Question two complex numbers

a) $z_1 = 2+3j$ $z_2 = 1+5j$ $z_3 = 3-j$

i) $z_1 + z_2$
 $(2+3j) + (1+5j)$
 $2+3j + 1+5j$
 $3 + 8j$

ii) $z_1 - z_3$
 $(2+3j) - (3-j)$
 $2+3j - 3+j$
 $-1 + 4j$

iii) $\frac{z_1}{z_2} = \frac{(2+3j)}{(1+5j)}$

Conjugate

~~$\frac{2+3j}{1+5j}$~~ $1-5j$

$\frac{(2+3j)}{(1+5j)} \times \frac{(1-5j)}{(1-5j)}$

$\frac{2 + 10j + 3j - 15j^2}{1 + 8j + 8j - 1}$ $\leftarrow j^2 = -1$

$\frac{2 + 10j + 3j - 15(-1)}{1 + -1}$