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maths friday afternoons Exam 2. 11/12/2020

Question 2 - complex numbers

$$z_1 = 2 + 5j \quad z_2 = 1 - 3j \quad z_3 = -5 - 2j$$

a) i)

$$z_1 + z_3 = (2 + 5j) + (-5 - 2j) \\ = -3 + 3j$$

$$\text{ii) } z_1 - z_3 = (2 + 5j) - (-5 - 2j) \\ = 7 + 7j$$

$$\text{iii) } \frac{z_1}{z_2} = \frac{(2 + 5j)}{(1 - 3j)} = \frac{(2 + 5j)}{(1 - 3j)} \times \frac{(1 + 3j)}{(1 + 3j)} \\ = \frac{2 + 6j - 5j - 15j^2}{1 + 3j - 3j - 9j^2} \\ = \frac{2 + j - 15j^2}{1 + 9j^2}$$

conjugate

$$\text{iv) } (z_3)^2 - \bar{z}_1 =$$