

Pg 1

Maths assessment 2-06/01/21
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$$\begin{aligned} \text{Q2 - a) } Z_1 + Z_3 &= (3 + 7j) + (-4 - j) \\ &= 3 + 7j - 4 - j \\ &= -1 + 6j \end{aligned}$$

$$\begin{aligned} \text{ii) } Z_1 - Z_3 &= (3 + 7j) - (-4 - j) \\ &= 3 + 7j + 4 + j \\ &= 7 + 8j \end{aligned}$$

$$\text{iii) } \frac{Z_1}{Z_2} = \frac{3 + 7j}{2 - 10j}$$

$$\frac{3 + 7j}{2 - 10j} \times \frac{2 + 10j}{2 + 10j}$$

$$\frac{(3 + 7j)(2 + 10j)}{(2 - 10j)(2 + 10j)}$$

$$\frac{6 + 30j + 14j + 70j^2}{4 + 20j - 20j - 100j^2}$$

$$\frac{6 + 44j - 70}{4 + 100}$$

$$\frac{-64 + 44j}{104}$$

$$\frac{-64}{104} + \frac{44j}{104}$$