

ACMA 4006

$$x = \frac{|A_1|}{|A|} = \frac{448}{112} = 4$$

$$y = \frac{|A_2|}{|A|} = \frac{-112}{112} = -1$$

$$z = \frac{|A_3|}{|A|} = \frac{224}{112} = 2$$

Q2)

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

i) $z_1 + z_3$

$$-3 + 3j$$

ii) $z_1 - z_3$

$$7 + 7j$$

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

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

$$= \frac{2 + 6j + 5j + 15j^2}{1 + 3j - 3j - 9j^2}$$

$$j^2 = -1$$

$$= \frac{-13 + 11j}{10}$$

$$= \frac{-13}{10} + \frac{11}{10}j$$