

Algorithms (set theory)

18/11/2013

Computer Science

MAT 101

1) Define

i) Empty set - A set is said to be empty if it contains no elements

ii) Single set - A set that contains only one element

$$2) A = 2 + 7i \quad B = 9 - 5i$$

(i) Imaginary  $\begin{bmatrix} A \\ \bar{B} \end{bmatrix}$  (ii) Real  $(B - A)$

$$1) \underline{2 + 7i} \quad (9 + 5i)$$

$$9 - 5i \quad (9 + 5i)$$

$$\underline{18 + 10i + 36 + 35i}$$

$$81 - 45i + 45i + 25i^2$$

$$= \underline{18 + 10i + 36 + 35i}$$

$$81 + 25i^2$$

$$= \underline{54 + 45i}$$

$$81 + (25 - 1)$$

$$\text{Since } i^2 = -1$$

$$\frac{54 + 45i}{81 - 25} = \frac{54 + 45i}{56}$$

$$\text{Im} = \frac{45}{56}$$

ii)  $(7 - 5i) - (2 + 7i)$

$$9 - 5i - 2 - 7i$$

$$z = 7 - 12i$$

$$\text{Re} = 7$$