

COMPLEX NUMBERS (Q 4, PAPER 1)

LESSON NO. 4: DIVISION

2007

4 (c) Let $u = 3 + 2i$.

(i) Find the value of $u^2 + \bar{u}^2$, where \bar{u} is the complex conjugate of u .

(ii) Investigate whether $\frac{13}{u} = \bar{u}$.

2004

4 (b) (i) Let $w = 1 - 2i$.

Plot w and \bar{w} on an Argand diagram, where \bar{w} is the complex conjugate of w .

2002

4 (b) Let $z = 5 + 4i$.

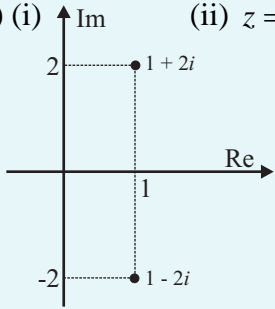
(i) Plot z and \bar{z} on an Argand diagram, where \bar{z} is the complex conjugate of z .

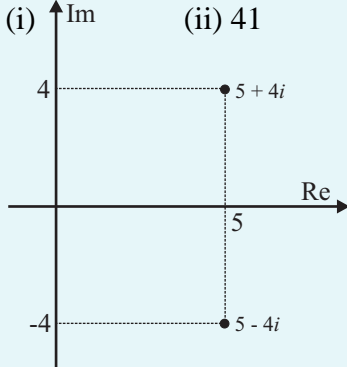
(ii) Calculate $z\bar{z}$.

(iii) Express $\frac{z}{\bar{z}}$ in the form $u + vi$ where $u, v \in \mathbf{R}$.

ANSWERS

2007 4 (c) (i) 10 (ii) Yes

2004 4 (b) (i)  (ii) $z = 5 \pm i$

2002 4 (b) (i)  (ii) 41 (iii) $\frac{9}{41} + \frac{40}{41}i$