

# TUGAS 2

- Express in polar form,  $z = -5 - j3$ .
- Express in the form  $a + jb$ :
  - $2\sqrt{156}^\circ$
  - $5\sqrt{37}^\circ$
- If  $z_1 = 12(\cos 125^\circ + j \sin 125^\circ)$  and  $z_2 = 3(\cos 72^\circ + j \sin 72^\circ)$ , find (a)  $z_1 z_2$  and (b)  $\frac{z_1}{z_2}$  giving the results in polar form.
- If  $z = 2(\cos 25^\circ + j \sin 25^\circ)$ , find  $z^3$  in polar form.
- Find the three cube roots of  $8(\cos 264^\circ + j \sin 264^\circ)$  and state which of them is the principal cube root. Show all three roots on an Argand diagram.
- Expand  $\sin 4\theta$  in powers of  $\sin \theta$  and  $\cos \theta$ .
- Express  $\cos^4 \theta$  in terms of cosines of multiples of  $\theta$ .
- If  $z = x + jy$ , find the equations of the two loci defined by:
  - $|z - 4| = 3$
  - $\arg(z + 2) = \frac{\pi}{6}$