

Advanced Higher Maths
SQA 2016 Paper
Question 8

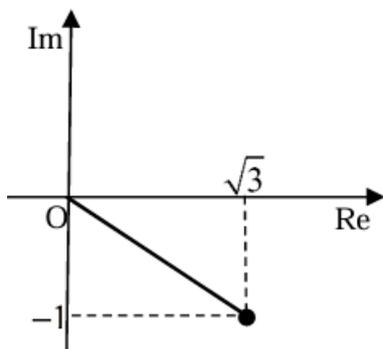


Let $z = \sqrt{3} - i$.

- (a) Plot z on an Argand diagram. 1
- (b) Let $w = az$ where $a > 0$, $a \in \mathbb{R}$.
Express w in polar form. 2
- (c) Express w^8 in the form $ka^n(x + i\sqrt{y})$ where $k, x, y \in \mathbb{Z}$. 3

Answers:

(a)



(b) $w = 2a \left(\cos\left(-\frac{\pi}{6}\right) + i \sin\left(-\frac{\pi}{6}\right) \right)$

(c) $w^8 = 128a^8 (-1 + i\sqrt{3})$