

Advanced Higher Maths
SQA 2017 Paper
Question 17

The complex number $z = 2 + i$ is a root of the polynomial equation $z^4 - 6z^3 + 16z^2 - 22z + q = 0$, where $q \in \mathbb{Z}$.

- (a) State a second root of the equation. 1
- (b) Find the value of q and the remaining roots. 6
- (c) Show the solutions to $z^4 - 6z^3 + 16z^2 - 22z + q = 0$ on an Argand diagram. 1

Answers:

(a) $2 - i$

(b) $1 \pm \sqrt{2}i$

(c)

