



QUESTION WORKBOOK

Complex arithmetic and the Argand diagram

Complex numbers · Year FM

7 questions · 23 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Given $z = 3 + 2i$ and $w = 1 - 4i$, find $z + w$ and $z - w$. [2]

A2 With $z = 3 + 2i$ and $w = 1 - 4i$, find zw in the form $a + bi$. [2]

SECTION B · Standard

B1 Express $(2 + 3i)/(1 - i)$ in the form $a + bi$. [3]

B2 For $z = 3 + 4i$, find $|z|$, state where z and its conjugate sit on an Argand diagram, and give the geometric relationship between them. [3]

- B3** Solve $z^2 - 4z + 13 = 0$, giving both roots in the form $a + bi$, and state the relationship between them. [3]

- B4** Find the real numbers x and y such that $(x + yi)(2 - i) = 5$. [4]

SECTION C · Stretch

- C1** Given that $z = 2 + i$ is a root of $z^3 + az^2 + bz + 10 = 0$, where a and b are real, find a , b and the third root. [6]