



QUESTION WORKBOOK

Further loci and regions in the Argand diagram

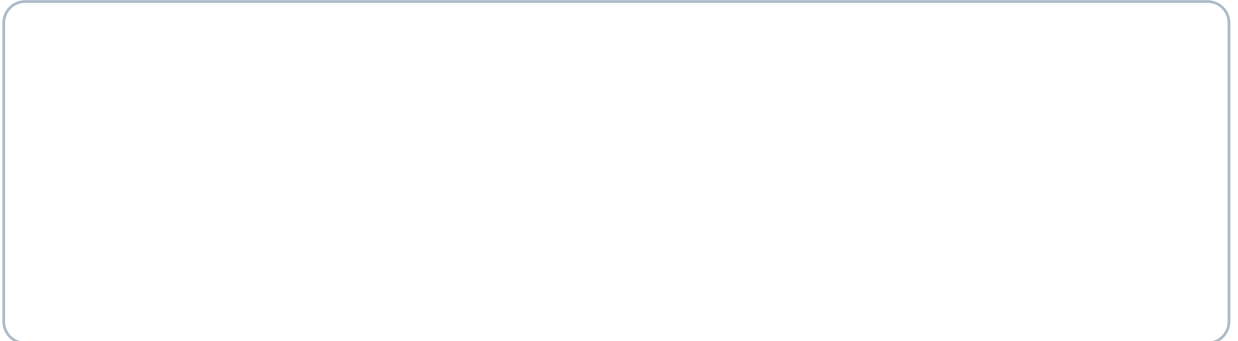
Further Pure 2 · Year FM

6 questions · 21 marks

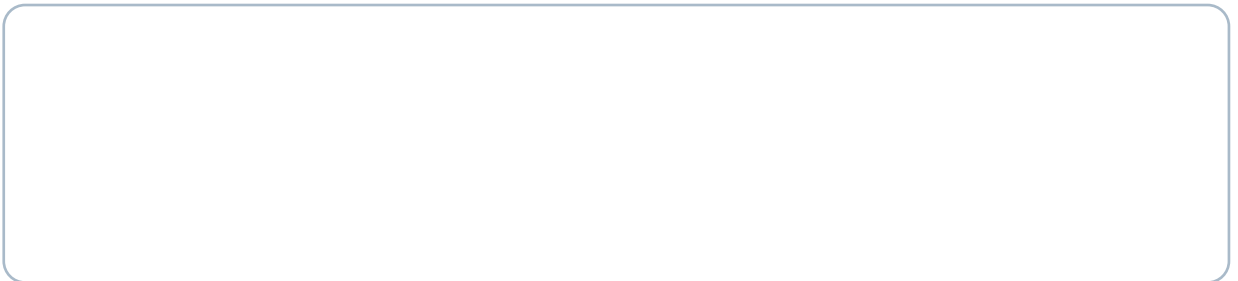
PRINT EDITION

SECTION A · Warm-up

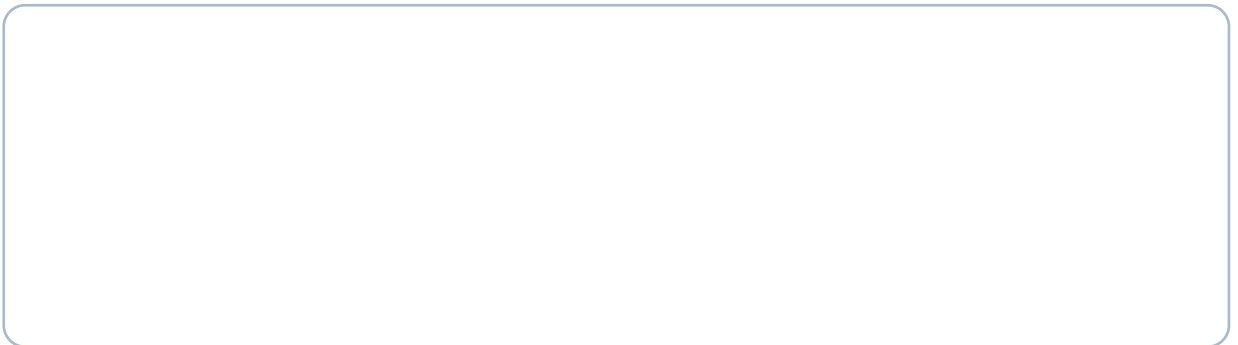
A1 Find the cartesian equation of the locus $|z - 3| = 2|z + 3|$ and describe it. [3]



A2 Sketch and describe the locus $\arg(z - 2) = \pi/4$. [3]

**SECTION B** · Standard

B1 Describe the locus given by $\arg((z - 1)/(z + 1)) = \pi/2$, justifying the shape. [4]



- B2** Shade the region satisfying both $|z| \leq 4$ and $|z - 3| \geq |z + 3|$, and find its area. [4]

- B3** For the circle $|z + 2 - i| = 3$, find the greatest and least values of $|z|$. [3]

SECTION C · Stretch

- C1** Find the cartesian equation of the locus $|z - 4| = |z - 2i|$, and the least possible value of $|z|$ on it. [4]