

STEP III, 2013 , Q6 EC

6. About half attempted this with marginally more success than question 4. Many candidates tried to write $z = x + iy$ or similar and likewise for w and then tried to expand which involved a lot more work than dealing with conjugates directly. Some tried to use the cosine rule rather than the triangle inequality from the diagram. In general, the first result and parts (i) and (ii) were well done but only the strongest candidates did better than pick up the odd mark here and there in trying to obtain the inequality. A lot of mistakes were made mishandling inequalities, but even those who could do this correctly overlooked the necessity of substantiating that the square roots are positive and that the denominator is non-zero.



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