



## STEP III, 2013 , Q4 EC

4. Just over two thirds of candidates attempted this with moderate success, approximately one third marks. Most succeeded with the opening result but even so, some lacked full explanation. Whilst most wrote down the correct form for the roots, few correctly expressed all the roots in the given range. Surprisingly, there was very limited understanding of the connection between the roots and the factors of  $1 + z^{2n}$  so the general result was not well answered. Conversely, part (i) was well-answered with the exception of those who did not deal with the powers of  $i$  satisfactorily. Part (ii) was beyond most candidates mainly because they failed to cancel the factor  $1 + z^2$ . However, those that managed to deal with this aspect generally answered the whole question very well.



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