

STEP II, 2019, Q3 EC

While this was a popular question it was also the one where the average mark achieved by candidates was the lowest. In this question many of the results to be reached were given in the question. Students therefore need to recognise that it is necessary for solutions to be presented very clearly, and it is for this reason that many solutions in the first parts did not achieve full marks. For example, justifications of the generalised result for a set of n real numbers expressed in the form of an inductive proof were the most successful.

For most candidates the majority of marks were scored in the sections up to and including part (i)(b). Many candidates were then unable to see how to work in the cases where $|x| \geq 1$ for part (i)(c). In the final part, candidates were often unable to put the equation into the form that had been used in the earlier parts of the questions and therefore did not manage to reduce the possible values of the integer roots to a sufficiently small set.



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