

## STEP II, 2015, Q3 EC

### Question 3

On the whole attempts at this question were good with a significant number of candidates obtaining full marks. In the first part of the question a number of candidates did not interpret the difference between successive terms of the sequence as triangles which included a particular length edge and chose to enumerate all possible cases – if this was carried out correctly it was still possible to achieve full marks on this section. Even when unsuccessful in this part of the question many candidates were able to write down correct expressions for the general cases. The proof by induction was generally well done, although a number of candidates failed to justify the first case fully (which can easily be done by enumerating all of the cases). The final part of the question (the corresponding result for an odd number of rods) was not attempted by all candidates. Of those that did, those who attempted to use induction rather than applying the result from earlier in the question struggled to reach the correct answer.



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