

STEP II, 2008, Q13 EC

Q13 Perhaps encouraged by the ease with which they had managed Q12, many of these candidates went on to attempt this question also. Although the listing of relevant cases was a fairly straightforward exercise, the handling of the binomial coefficients – which certainly *looked* clumsy and unappealing – was coped with much less well, and many mistakes were made in the ensuing algebra. In the very final part of the question, the idea that the calculus could lead to a nice, neat answer ($k = \sqrt{n(n-1)}$) that then needed to be interpreted in terms of integer values, was just one step too far for most takers. The eventual mean score of 8 on this question testifies to the difficulties found in the algebra by most of the candidates who attempted it.



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