

STEP II, 2019, Q12 EC

Almost all candidates who attempted this question were able to achieve full marks on the first part. In the second part, the values of the interquartile range and 2σ were generally found correctly, but then many candidates did not realise that squaring would eliminate the square roots from the values to be compared.

In the final part of the question some candidates failed to recognise that the $(k + 1)^{th}$ term of the expansion was the term in x^k and gave the term in x^{k+1} instead. A good number were successful in finding the lower quartile and the median, but only a minority realised that $\mu^{-n} = \left(1 + \frac{1}{n}\right)^n$. Those that did were more successful in proving that $\mu > \left(\frac{1}{4}\right)^n$ than $\mu < \left(\frac{1}{2}\right)^n$.



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