

STEP III, 2014 , Q6 EC

6. The third most popular question, as well as the third most successful being only marginally behind question one in marks, having been attempted by about 70%. Many did not use the required starting point, instead resorting to monotonicity or drawing pictures (graphs) which were not proofs. In parts (i) especially and (ii) as well, candidates failed to use the result that $f(t) > 0$, cavalierly using $f(t) < 0$, or even $f(t) < 1$ without justification. Many made complicated choices of functions for (i) and (ii), and then got lost in their differentiations, and finally there was frequent lack of care to ensure that quantities dividing inequalities were positive.



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