

STEP II, 2011, Q3 EC

Q3 Again, despite the obvious presence of inequalities in the question, this was another very popular question, and was generally well-handled very capably in part (i), where the structure of the question provided the necessary support for successful progress to be made here. Part (ii) was less popular and less well-handled, even though the only significant difference between this and (i)(c) was (effectively) that the direction of the inequality was reversed. Although the intervals under consideration were clearly flagged, many candidates omitted to consider that, having shown the function *increasing* on this interval, they still needed to show something simple such as $f(0) = 0$ in order to show that $f(x) \geq 0$ on this interval. A few also thought that $f'(x)$ increasing implied that $f(x)$ was also increasing.



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