



## STEP III, 2014 , Q1 EC

1. This was the most popular question on the paper, being attempted by approximately 14 out of every 15 candidates. It was the second most successfully attempted with a mean score of half marks. The stem of the question caused no problems, but a common mistake in part (i) was to attempt derivatives to obtain the desired result. Most candidates came unstuck in part (ii), making it much more difficult for themselves by attempting to work with expressions in  $a$ ,  $b$ , and  $c$  rather than using the log series working with  $q$  and  $r$ , and as a result making sign errors, putting part (iii) beyond reach, and although they could find counterexamples for the claim in part (iv), they did so without the clear direction that working with the expressions in  $q$  and  $r$  would have made obvious.



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