

## STEP II, 2013, Q3 EC

3. This question was again popular and had an average score of about half of the marks. In the first part almost all candidates were able to sketch the correct shape of graph, but some did not provide suitable explanations to accompany these or included additional cases that were not asked for. A number of candidates attempting the second part of the question reached one of the results by squaring an inequality without considering the signs and many assumed that the result of part (i) implied that  $c$  must be negative. Only about half of the candidates attempted part (iii), and many of those who did did not use sketches in their solutions. Solutions to part (iv) generally involved guessing of the values of  $a$ ,  $b$  and  $c$  followed by a check that the conditions were met.



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