

STEP III, 2019, Q1 EC

Question 1

This was the third most popular question attracting 83% of candidates, though it was only the 6th most successful with an average mark just under 8/20, and no candidate achieved full marks on it. Small mistakes when starting the question often resulted in very different differential equations and hence solutions which lost lots of marks. Some candidates simply did not know how to solve a differential equation and they appeared to waste a lot of time. Drawing the spiral in part (i), lots of candidates guessed that the extrema occurred on the axes losing substantial marks. Candidates should have spent a few minutes more sketching their graphs as these sketches were the main feature of the question and a lot of candidates forgot to mark salient points. Attempting the final sketch, only a handful considered the behaviour for large t .



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