



STEP II, 2019, Q9 EC

This was the most popular of the Mechanics and Statistics questions, but also one of the questions that attracted a large number of solutions that received no marks.

Students seemed relatively good at setting up the kinematics equations in this question and most had the useful idea of differentiating. Somewhat fewer thought about using either completing the square or the quadratic discriminant to decide where the derivative was positive. The logic of the question was very poorly understood, with many students seeing the given inequality as the end point rather than the starting point of the question.

In the second part of part (i) it was important that students demonstrated not just that a time existed where the distance is decreasing, but that this time was in the acceptable domain of the question.

Part (ii) was conceptually very similar to part (i) but most students found the increased algebraic demand too much.



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