

STEP II, 2021, Q4 EC

Question 4

Part (i) was often successfully answered, with most candidates successfully differentiating the equation of the curve and setting equal to 0 to find the stationary points.

In part (ii) some candidates did not link the coordinates of the stationary point found in (i) to the value of a that needed to be stated. In some cases, the graph when sketched extended beyond the point identified even when it had been identified correctly. The sketches of the inverse function were generally well done, although a significant number did not appreciate that the mirror image as the curve approached its stationary point would have a gradient that tends to infinity.

In part (iii) some candidates attempted to find a form for the inverse function rather than deducing what was necessary from the information given. In most cases this was not successful, although a small number did successfully reach some of the results. Despite the fact that the question asked candidates to find a real root in the cases where one exists, some candidates did not do this and instead simply stated the number of roots.

Those candidates who were successful with (iii)(b) were then usually able to complete the rest of the question successfully.



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