STEP II, 2015, Q1 EC

Question 1

This was a popular question, but a number of common errors resulted in a relatively low average score for the attempts made. A number of candidates did not appreciate that it is necessary in the first part to show both that the gradient is positive for all relevant values of x and to check the value when x=0. Additionally, many candidates failed to note that the next part of this question instructed them to use the result shown in the second section of part (i) and instead used a graphical method. Other common errors included an incorrect use of the chain rule in the second part leading to a sign error and incorrect statements of formulae for the sums.