STEP II 2008 Question 5 — Examiner Report

Q5 This was the most popular question on the paper (by a small margin) and with the second highest mean mark (12) of all the pure questions. Those who were able to spot the two standard trig. substitutions $s = \sin x$ and $c = \cos x$ for the first two parts generally made excellent progress, although the log. and surd work required to tidy up the second integral's answer left many with a correct answer that wasn't easy to do anything much useful with at the very end, when deciding which was numerically the greater. The binomial expansion of $(a+b)^5$ was handled very comfortably, as was much of the following inequality work. However, the very final conclusion was very seldom successfully handled as any little mistakes, unhelpful forms of answers, etc., prevented candidates' final thoughts from being sufficiently relevant.