

## STEP III, 2013 , Q2 EC

2. This was the second most popular question, attempted by six out of every seven candidates, with only marginally less success than its predecessor. The first differential equation was proved correctly and many successfully completed the general result by induction, although there were some problems with the initial case. Some had difficulty finding the correct coefficients for the odd powers of  $x$  in the Maclaurin series but the last part produced a variety of errors and few correct answers. Such errors included  $\sin^{-1}\frac{1}{2} = \frac{\pi}{3}$ , forgetting to divide  $y$  by  $x$ , and attempting to evaluate the series using  $x = 1$ .



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