8. Given that

$$y = e^{3x} \cosh 2x$$

prove by induction that for $n \in \mathbb{N}$

$$\frac{d^n y}{dx^n} = e^{3x}\left(\frac{5^n + 1}{2}\cosh 2x + \frac{5^n - 1}{2}\sinh 2x\right)$$

(6)

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Question 8 continued

Question 8 continued

(Total for Question 8 is 6 marks)

TOTAL FOR PAPER IS 75 MARKS

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