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12	11d	Differentiate $(3 + e^{2x})^5$.	2
$y = (3 + e^{2x})^5$ <p>Using the function of a function rule/chain rule:</p> $\begin{aligned}\frac{dy}{dx} &= 5(3 + e^{2x})^4 \cdot \frac{d}{dx}(3 + e^{2x}) \\ &= 5(3 + e^{2x})^4 \cdot 2e^{2x} \\ &= 10e^{2x}(3 + e^{2x})^4\end{aligned}$			State Mean: 1.71/2

* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by the Board of Studies

Board of Studies: Notes from the Marking Centre

In most responses, candidates differentiated the expression using the chain rule and arrived at the correct answer. In weaker responses, the most common mistakes were failing to differentiate the expression inside the bracket and failing to write down the power in the answer to obtain $10e^{2x}(3 + e^{2x})$.

Source: http://www.boardofstudies.nsw.edu.au/hsc_exams/