9 Variables x and y are such that $y = \dfrac{e^{3x}\sin x}{x^2}$. Use differentiation to find the approximate change in y as x increases from 0.5 to $0.5 + h$, where h is small. [6]

10 (a) $g(x) = 3 + \frac{1}{x}$ for $x \geqslant 1$.

(i) Find an expression for $g^{-1}(x)$. [2]

(ii) Write down the range of g^{-1}. [1]

(iii) Find the domain of g^{-1}. [2]

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