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<b>12</b>	<b>12a</b>	Differentiate with respect to $x$ : (i) $(x - 1) \log_e x$	<b>2</b>
$(x - 1) \log_e x$ Using the product rule, Let $u = x - 1$ , $u' = 1$ Let $v = \log_e x$ , $v' = \frac{1}{x}$ $\frac{dy}{dx} = u' \cdot v + v' \cdot u$ $= 1 \cdot \log_e x + \frac{1}{x} \cdot (x - 1)$ $= \log_e x + \frac{x - 1}{x}$			State Mean: <b>1.64/2</b>

\* 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

(i) In most responses, candidates recognised they were required to use the product rule. In many responses, candidates wrote  $u$ ,  $u'$ ,  $v$  and  $v'$  to assist them. In a small number of responses, candidates quoted the product rule incorrectly, often using subtraction instead of addition and some candidates differentiated  $\log_e x$  incorrectly.

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