

Want more revision exercises? Get [MathsFit HSC Extension 1](#) for \$2.95/topic - New from projectmaths

2014 11fDifferentiate $\frac{e^x \ln x}{x}$.**2**

$$\begin{aligned}\frac{d}{dx}\left(\frac{e^x \ln x}{x}\right) &= \frac{x(e^x \frac{1}{x} + e^x \ln x) - 1(e^x \ln x)}{x^2} \\ &= \frac{e^x + xe^x \ln x - e^x \ln x}{x^2} \\ &= \frac{e^x + (x-1)e^x \ln x}{x^2}\end{aligned}$$

State Mean: 1.56

* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

Some candidates used the quotient rule and others used the product rule correctly.

A common problem was:

- failing to differentiate the numerator correctly before actually applying the quotient rule.

Nevertheless, a mark was awarded for the correct use of quotient or product rule, with at least one derivative correct and a common denominator of x^2 .

Source: http://www.boardofstudies.nsw.edu.au/hsc_exams/2014/pdf_doc/2014-maths-ext-1.pdf