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08	2c	(ii) Evaluate $\int_0^{\frac{\pi}{12}} \sec^2 3x \, dx$.	3
$ \begin{aligned} \int_0^{\frac{\pi}{12}} \sec^2 3x \, dx &= \left[\frac{1}{3} \tan 3x \right]_0^{\frac{\pi}{12}} \\ &= \frac{1}{3} \left[\tan \frac{\pi}{4} - \tan 0 \right] \\ &= \frac{1}{3} (1 - 0) \\ &= \frac{1}{3} \end{aligned} $			

* 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 better responses, candidates set this question out in three steps: finding the primitive, substitution of the limits and then evaluation of the resulting expressions. Candidates are reminded that all steps in a solution need to be shown. Common errors were finding an incorrect primitive, for example $3 \tan(3x)$, $\frac{1}{3} \tan(x)$ or $\tan\left(\frac{3x^2}{2}\right)$, using $\frac{\pi}{2}$ as the upper limit instead of $\frac{\pi}{12}$ and using degrees instead of radians.

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