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12	11g	Find $\displaystyle\int_0^{\frac{\pi}{2}} \sec^2 \frac{x}{2}\, dx$.	3

State Mean: **2.09/3**

$$\int_0^{\frac{\pi}{2}} \sec^2 \frac{x}{2}\, dx = \left[2\tan\frac{x}{2}\right]_0^{\frac{\pi}{2}}$$
$$= 2\left[\tan\frac{\pi}{4} - \tan 0\right]$$
$$= 2[1 - 0]$$
$$= 2$$

* 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 better responses, candidates used the table of standard integrals to arrive at the primitive $2\tan\frac{x}{2}$ and then substituted the limits correctly. In weaker responses, candidates arrived at a primitive of the form $a\tan(bx)$ where $a \neq 2$ and $b \neq \frac{1}{2}$.

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