10	1e	Differentiate $x^2 \tan x$ with respect to x.	2

State Mean: **1.74/2**

Let $y = x^2 \tan x$.

Using the product rule,

Let $u = x^2$, $u' = 2x$

Let $v = \tan x$, $v' = \sec^2 x$

$$\frac{dy}{dx} = u'.v + v'.u$$

$$= 2x.\tan x + \sec^2 x.\, x^2$$

$$= 2x \tan x + x^2 \sec^2 x$$

* 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

Most candidates could differentiate the given function. The common errors were: not using the product rule; and simply expressing their answer as $2x\sec^2 x$; and incorrect negative signs.

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