09	2a	(i) Differentiate with respect to x: $x \sin x$	2

State Mean: **1.74/2**

Using product rule: If $y = uv$, $u = x$ $v = \sin x$ $\frac{dy}{dx} = u'v + v'u$

$u' = 1$ $v' = \cos x$

$$\frac{d}{dx}(x \sin x) = u'v + v'u$$
$$= 1 . \sin x + \cos x . x$$
$$= \sin x + x \cos x$$

* 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 successfully used the product rule. The most common error was using $-\cos x$ as the derivative of $\sin x$. Candidates are reminded that the derivative of $\sin x$ can be obtained using the standard integral sheet available on the back of the examination paper.

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