

11	1b	Differentiate $\frac{\sin^2 x}{x}$ with respect to x .	2
<p>Let $y = \frac{\sin^2 x}{x}$.</p> <p>Using the quotient rule,</p> <p>Let $u = (\sin x)^2$, $u' = 2 \sin x \cdot \cos x = \sin 2x$</p> <p>Let $v = x$, $v' = 1$</p> $\frac{dy}{dx} = \frac{v \cdot u' - u \cdot v'}{v^2}$ $= \frac{x \cdot \sin 2x - \sin^2 x \cdot 1}{x^2}$ $= \frac{x \sin 2x - \sin^2 x}{x^2}$			<p>State Mean: 1.57/2</p>

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by the Board of Studies

Board of Studies: Notes from the Marking Centre

Generally the quotient rule was applied correctly. In some cases the product rule was also applied correctly.

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