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12	12a	Differentiate with respect to x : (ii) $\frac{\cos x}{x^2}$	2
<p>Using the quotient rule, Let $u = \cos x$, $u' = -\sin x$ Let $v = x^2$, $v' = 2x$</p> $\frac{dy}{dx} = \frac{v \cdot u' - u \cdot v'}{v^2}$ $= \frac{x^2 \cdot (-\sin x) - \cos x \cdot 2x}{(x^2)^2}$ $= \frac{-x^2 \sin x - 2x \cos x}{x^4}$ $= \frac{-x \sin x - 2 \cos x}{x^3}$			State Mean: 1.65/2

* 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

(ii) In most responses, candidates recognised they were required to use the quotient rule. In some weaker responses, candidates differentiated $\cos x$ incorrectly to obtain $\sin x$ although they could have used the table of standard integrals available on the back of the examination paper to find the derivative of $\cos x$.

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