10	2c	Find the gradient of the tangent to the curve $y = \ln(3x)$ at the point where $x = 2$.	2

State Mean: **1.42/2**

$$y = \ln(3x)$$

$$\frac{dy}{dx} = \frac{3}{3x}$$

$$= \frac{1}{x}$$

At $x = 2$, $\frac{dy}{dx} = \frac{1}{2}$

$\therefore$ gradient is $\frac{1}{2}$.

* 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

Most candidates understood that a derivative was required and that it should be evaluated at $x = 2$. Many candidates were not able to correctly differentiate the function. The most common incorrect derivatives were $3\ln 3x$, $\frac{x}{3}$ and $\frac{3}{x}$. Many candidates apparently misread the question and used time finding the equation of the tangent.

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