11	4c	The gradient of a curve is given by $\frac{dy}{dx} = 6x - 2$. The curve passes through the point $(-1, 4)$. What is the equation of the curve?	2

State Mean: **1.22/2**

$\frac{dy}{dx} = 6x - 2$

$y = 3x^2 - 2x + c$

Subs in $(-1, 4)$:

$4 = 3 \times (-1)^2 - 2 \times (-1) + c$

$4 = 3 + 2 + c$

$c = 4 - 5$

$= -1$

$\therefore$ the equation is $y = 3x^2 - 2x - 1$

* 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

The most common error was to substitute $x = -1$ into $\frac{dy}{dx} = 6x - 2$ then find the equation of the tangent to the curve, instead of finding the equation of the curve itself. Some integrated correctly, but then did not substitute the point $(-1, 4)$ correctly to evaluate the constant of integration. Many substituted 0 for y.

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