2014 11a Solve $\left(x+\frac{2}{x}\right)^2 - 6\left(x+\frac{2}{x}\right) + 9 = 0$. **3**

Let $m = x + \frac{2}{x}$

$\therefore\ m^2 - 6m + 9 = 0$

$(m-3)^2 = 0$

$m = 3$

$\therefore\ x + \frac{2}{x} = 3$

$x^2 + 2 = 3x$

$x^2 - 3x + 2 = 0$

$(x-2)(x-1) = 0$

$x = 2, 1$

State Mean: **2.49**

* These solutions have been provided by *projectmaths* and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

Many candidates recognised and used an appropriate substitution, performed appropriate basic algebraic processes to establish the final result of $x = 1$ and $x = 2$.

A common problem was:

- expanding the expression but not demonstrating an appropriate method to solve for x.

Source: http://www.boardofstudies.nsw.edu.au/hsc_exams/2014/pdf_doc/2014-maths-ext-1.pdf