06	**7a**	Let α and β be the solutions of $x^2 - 3x + 1 = 0$. (i) Find $\alpha\beta$. (ii) Hence find $\alpha + \frac{1}{\alpha}$.	**1** **1**

i. $\alpha\beta = \frac{c}{a}$

$= \frac{1}{1}$

$= 1$

ii. From i, as $\alpha\beta = 1$, then $\beta = \frac{1}{\alpha}$.

This means $\alpha + \frac{1}{\alpha} = \alpha + \beta$

$= \frac{-b}{a}$

$= 3$

* 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 correctly evaluated the product of the roots but then experienced difficulty in the relatively unfamiliar task of using that result to evaluate the sum of the roots. The difficulty arose because the reciprocal relationship between the roots was left for the candidates to discover. This proved to be a demanding task for most candidates.

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