05	1e	Find the values of x for which $\lvert x - 3 \rvert \leq 1$	2

$|x - 3| \leq 1$

Two cases:

$x - 3 \leq 1$
$x \leq 1 + 3$
$x \leq 4$

$-(x - 3) \leq 1$
$x - 3 \geq -1$
$x \geq -1 + 3$
$x \geq 2$

$\therefore 2 \leq x \leq 4$

or:

$-1 \leq x - 3 \leq 1$
$-1 + 3 \leq x \leq 1 + 3$
$2 \leq x \leq 4$

$\therefore 2 \leq x \leq 4$

* 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

Candidates who interpreted the question as $-1 \leq x - 3 \leq 1$ were generally successful. Those who split the question into two inequalities often had difficulty with the negative case or were unable to put the two inequalities together. Graphical solutions were generally correct.

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