10	2b	Solve the inequality $x^2 - x - 12 < 0$.	2

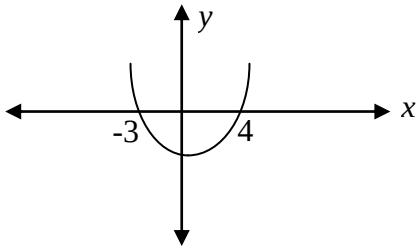
State Mean: **1.55/2**

$x^2 - x - 12 < 0$.

$(x - 4)(x + 3) < 0$

METHOD 1:

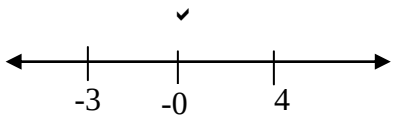
Let $y = x^2 - x - 12$, so we need to consider vales of x for which $y < 0$:



$\therefore$ $-3 < x < 4$

METHOD 2:

Let $(x - 4)(x + 3) = 0$ gives points $x = 4, -3$:



Choose 0: subs in $(x - 4)(x + 3) < 0$

LHS $= (0 - 4)(0 + 3)$

$= -12$, $\therefore$ true

$\therefore$ $-3 < x < 4$

* 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

Most candidates correctly factorised the quadratic but quite a few were then unable to interpret their working correctly. The most common mistake involved having $x < -3$ incorrectly appear as part of the solution. The most efficient solution used was to sketch the concave-up parabola intersecting the x-axis at -3 and 4. This usually led to a correct solution. Candidates who checked several x values often took much more working and time and were sometimes incorrect in one of the substitutions leading to erroneous conclusions.

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