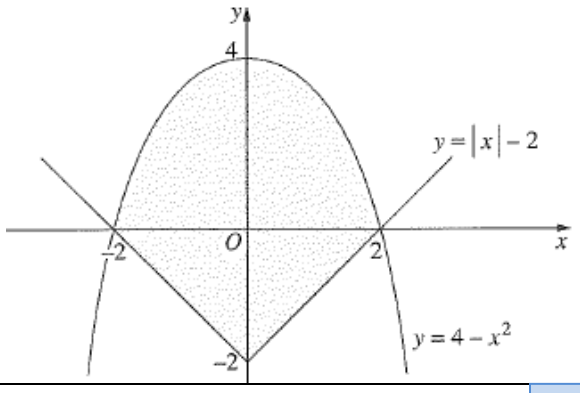
11 **4e** The diagram shows the graphs of $y = |x| - 2$ and $y = 4 - x^2$. **2**

Write down the inequalities that together describe the shaded region.

Not to scale



State Mean: **0.91/2**

Choose a point inside the shaded region, say (0, 0):

Subs (0, 0) in $y = |x| - 2$:
$0 = |0| - 2$? No!, but $0 \geq -2$ $\therefore y \geq |x| - 2$

Subs (0, 0) in $y = 4 - x^2$:
$0 = 4 - (0)^2$.? No!, but $0 \leq 4$ $\therefore y \leq 4 - x^2$

$\therefore y \geq |x| - 2, y \leq 4 - x^2$

* 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

This part was more challenging. The most common errors were to give the domain and range as the inequalities or to find the area between the two curves. There were a significant number of non-attempts for this question.

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