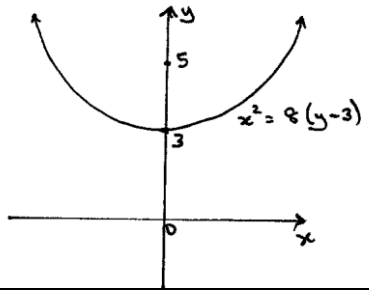
08	**4c**	Consider the parabola $x^2 = 8(y - 3)$. (i) Write down the coordinates of the vertex. (i) Find the coordinates of the focus. (iii) Sketch the parabola.	 **1** **1** **1**

i. $x^2 = 8(y - 3)$ is of the form $(x - h)^2 = 4a(y - k)$
$\therefore$ Vertex (0, 3)

ii. Focal length $a = 2$
$\therefore$ Focus (0, 5)

iii.



* 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 used the equation as given generally answered the question well. Those who rewrote the equation with y as the subject or used calculus tended to find the initial parts difficult.

(i) In weaker responses, candidates found an incorrect answer by a calculation using the y-intercept.

(ii) In better responses, candidates were successful in finding the focal length from the given equation. Candidates are reminded to read the question carefully as many only found the focal length rather than the required coordinates of the focus.

(iii) A significant number of candidates used the incorrect results obtained in parts (i) and (ii) to successfully display an appropriate sketch. However some candidates failed to realise the conflict in their representation. Candidates are reminded to label their axes when drawing a sketch and to indicate a scale.

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