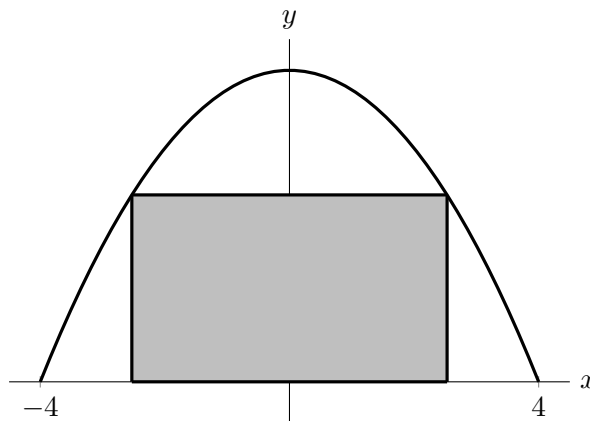


6. [8 points]

A garden store plans to build a large rectangular sign on the interior wall at one end of their greenhouse. For x and y in meters, the curved roof of the greenhouse is described by the function

$$y = 5 - \frac{5}{16}x^2 \text{ for } -4 \leq x \leq 4.$$

This curve is graphed to the right; the shaded rectangle is one possible sign that could be built.



Find the width and height of the sign with the maximum area. Use calculus to find your answers, and be sure to show enough evidence that the values you find do in fact maximize the area.

Answers: area is maximized when width = _____ meters

and height = _____ meters