

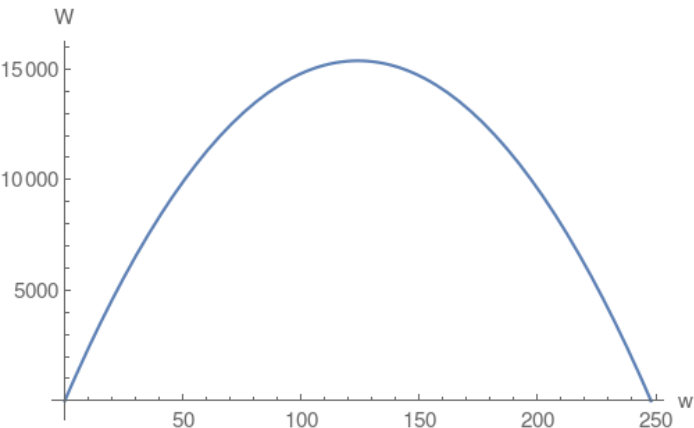
1.

1. Perimeter of rectangle = $2(w+a)=496$ where a is the length of the other edge of rectangle. Area of the rectangle is = $w \times a$.

Use perimeter equation

and solve for $a = \frac{496-2w}{2}$

Then reformulate the area $W = w \times a = 248w - w^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{496}{2}$ and then plug the vertex into the area which will compute the maximum area.