

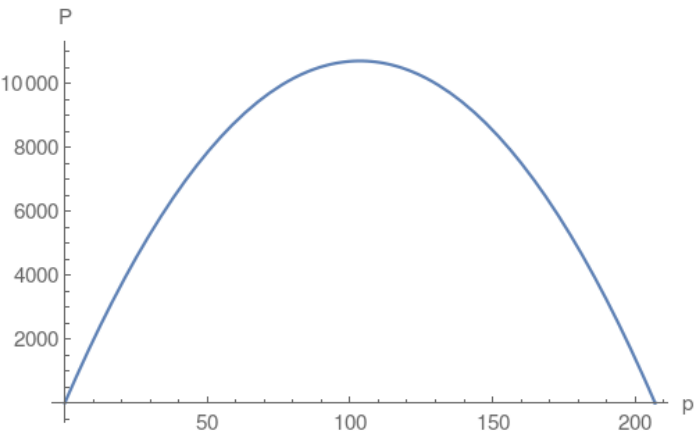
3.

3. Perimeter of rectangle = $2(p+a)=414$ where a is the length of the other edge of rectangle. Area of the rectangle is = $p \times a$.

Use perimeter equation

and solve for $a = \frac{414-2p}{2}$

Then reformulate the area $P = p \times a = 207p - p^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{414}{4}$ and then plug the vertex into the area which will compute the maximum area.