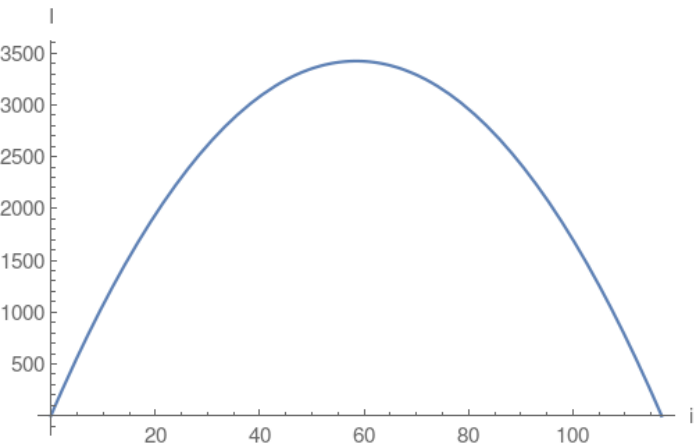**2.**

2. Perimeter of rectangle $= 2(i+a) = 234$ where a is the length of the other edge of rectangle. Area of the rectangle is $= i \times a$.

Use perimeter equation

and solve for $a = \frac{234-2i}{2}$

Then reformulate the area $I = i \times a = 117\,i - i^2$ which turns out to be a quadratic Parabola:

Compute the vertex $\frac{234}{4}$ and then plug the vertex into the area which will compute the maximum area.