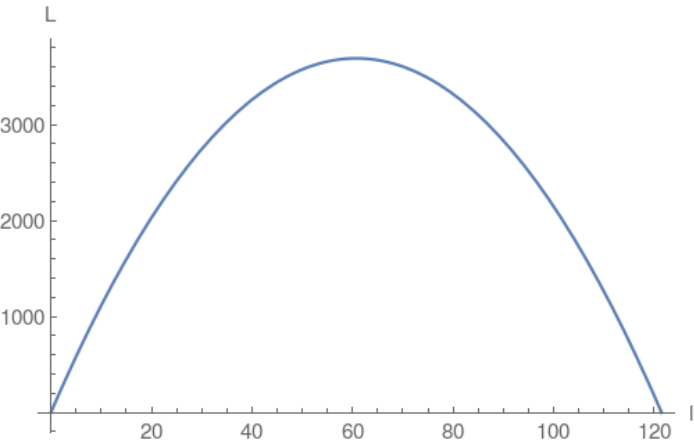
2.

2. Perimeter of rectangle = $2(l+a)=243$ where a is the length of the other edge of rectangle. Area of the rectangle is = $l \times a$.
Use perimeter equation
and solve for $a = \frac{243-2l}{2}$

Then reformulate the area $L = l \times a = \frac{243\,l}{2} - l^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{243}{4}$ and then plug the vertex into the area which will compute the maximum area.