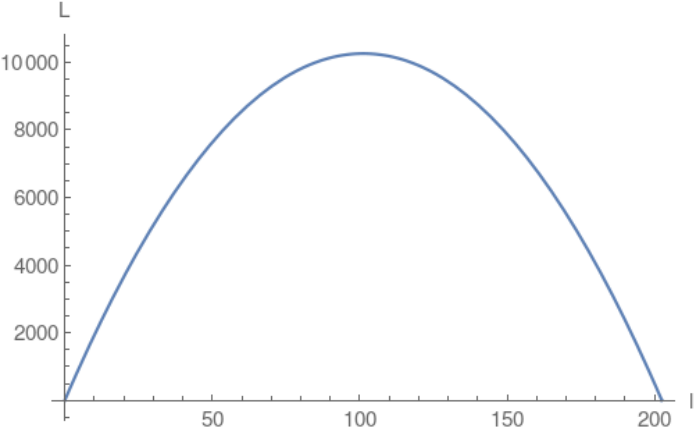
1.

1. Perimeter of rectangle $= 2(l+a) = 405$ 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 $a = \frac{405-2l}{2}$

Then reformulate the area $L = l \times a = \frac{405\,l}{2} - l^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{405}{4}$ and then plug the vertex into the area which will compute the maximum area.