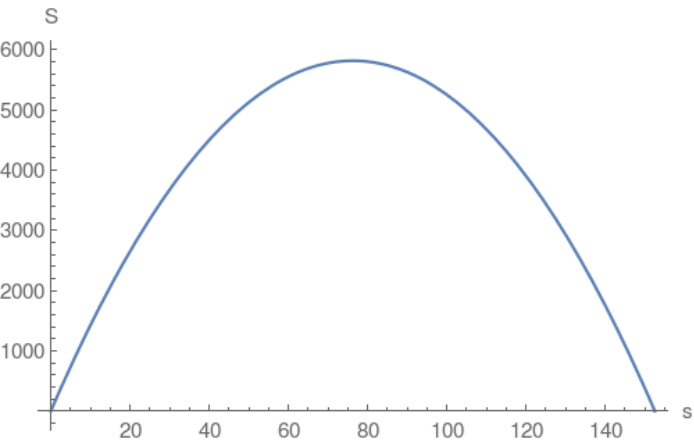
2.

2. Perimeter of rectangle $= 2(s+a) = 305$ where a is the length of the other edge of rectangle. Area of the rectangle is $= s \times a$.
Use perimeter equation
and solve for $a = \frac{305-2s}{2}$

Then reformulate the area $S = s \times a = \frac{305\,s}{2} - s^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{305}{4}$ and then plug the vertex into the area which will compute the maximum area.