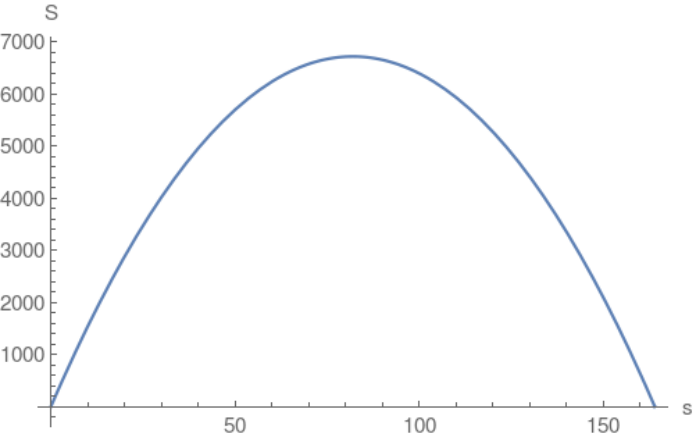
2.

2. Perimeter of rectangle = $2(s+a)=328$ 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= $\frac{328-2s}{2}$

Then reformulate the area S= $s \times a = 164\,s - s^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{328}{4}$ and then plug the vertex into the area which will compute the maximum area.