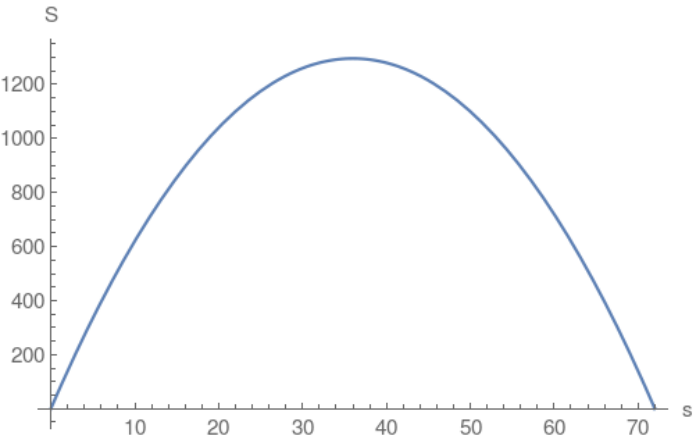
# 1.

1. Perimeter of rectangle $= 2(s+a) = 144$ 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 $a = \frac{144-2s}{2}$

Then reformulate the area $S = s \times a = 72\,s - s^2$ which turns out to be a quadratic Parabola:




Compute the vertex $\frac{144}{4}$ and then plug the vertex into the area which will compute the maximum area.