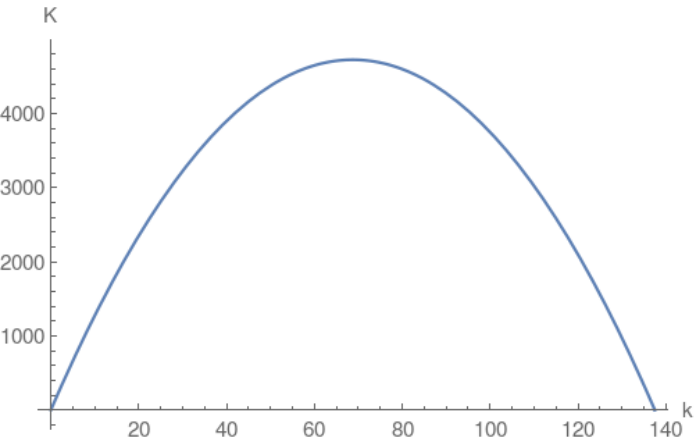
4.

4. Perimeter of rectangle = $2(k+a)=275$ where a is the length of the other edge of rectangle. Area of the rectangle is = $k \times a$.
Use perimeter equation
and solve for $a = \frac{275-2k}{2}$

Then reformulate the area $K = k \times a = \frac{275\,k}{2} - k^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{275}{4}$ and then plug the vertex into the area which will compute the maximum area.