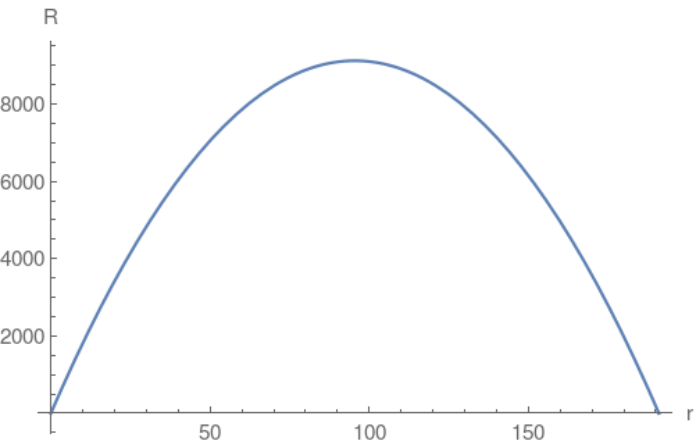# 2.

2. Perimeter of rectangle $= 2(r+a) = 382$ where a is the length of the other edge of rectangle. Area of the rectangle is $= r \times a$.
Use perimeter equation
and solve for a$= \frac{382-2r}{2}$

Then reformulate the area R$= r \times a = 191\,r - r^2$ which turns out to be a quadratic Parabola:

Compute the vertex $\frac{382}{4}$ and then plug the vertex into the area which will compute the maximum area.