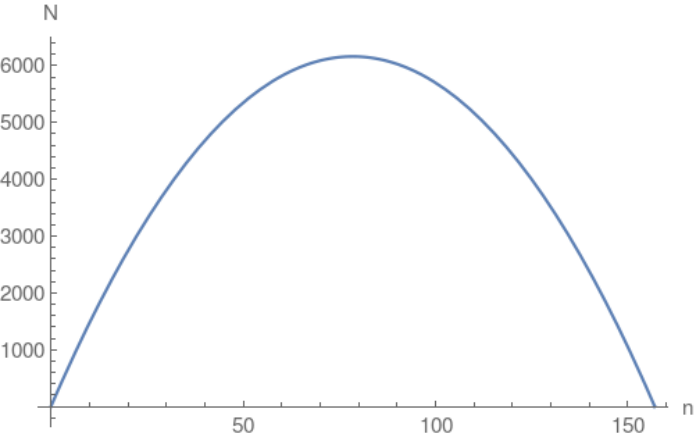
2.

2. Perimeter of rectangle $= 2(n+a) = 314$ where a is the length of the other edge of rectangle. Area of the rectangle is $= n \times a$.
Use perimeter equation
and solve for $a = \frac{314-2n}{2}$

Then reformulate the area $N = n \times a = 157\,n - n^2$ which turns out to be a quadratic Parabola:



Compute the vertex $\frac{314}{4}$ and then plug the vertex into the area which will compute the maximum area.