3.
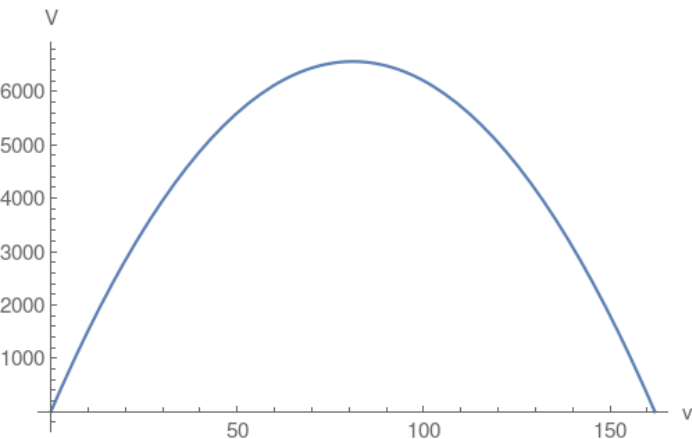
3. Perimeter of rectangle $= 2(v+a) = 324$ where a is the length of the other edge of rectangle. Area of the rectangle is $= v \times a$.

Use perimeter equation

and solve for $a = \frac{324 - 2v}{2}$

Then reformulate the area $V = v \times a = 162\,v - v^2$ which turns out to be a quadratic Parabola:

Compute the vertex $\frac{324}{4}$ and then plug the vertex into the area which will compute the maximum area.