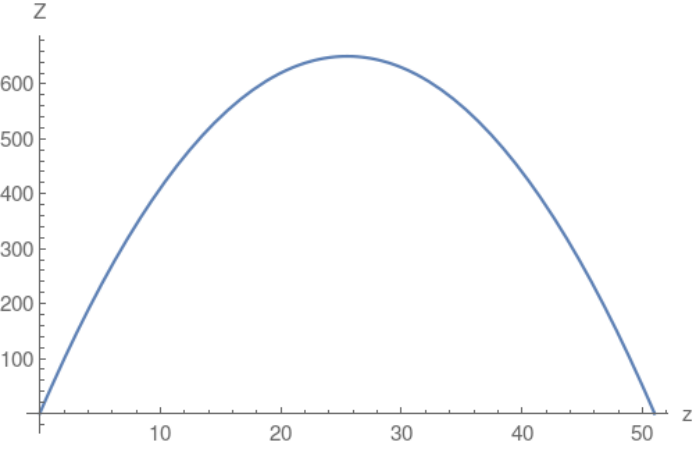
## 2.

2. Perimeter of rectangle $= 2(z+a) = 102$ where a is the length of the other edge of rectangle. Area of the rectangle is $= z \times a$.
Use perimeter equation
and solve for $a = \frac{102-2z}{2}$

Then reformulate the area $Z = z \times a = 51\,z - z^2$ which turns out to be a quadratic Parabola:




Compute the vertex $\frac{102}{4}$ and then plug the vertex into the area which will compute the maximum area.