

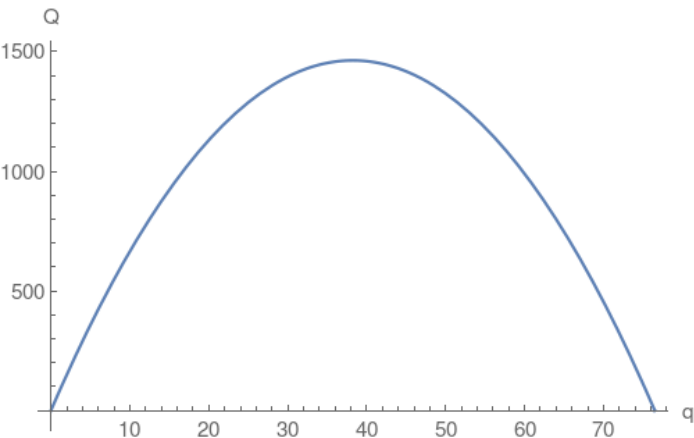
2.

2. Perimeter of rectangle =  $2(q+a)=153$  where  $a$  is the length of the other edge of rectangle. Area of the rectangle is  $= q \times a$ .

Use perimeter equation

and solve for  $a = \frac{153-2q}{2}$

Then reformulate the area  $Q = q \times a = \frac{153q}{2} - q^2$  which turns out to be a quadratic Parabola:



Compute the vertex  $\frac{153}{4}$  and then plug the vertex into the area which will compute the maximum area.