

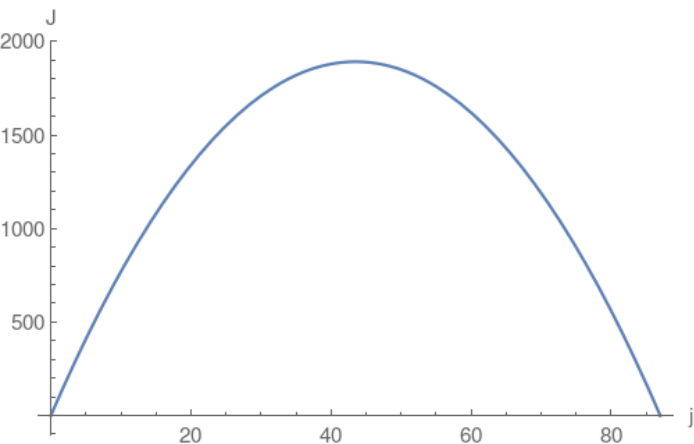
1.

1. Perimeter of rectangle =  $2(j+a)=174$  where  $a$  is the length of the other edge of rectangle. Area of the rectangle is =  $j \times a$ .

Use perimeter equation

and solve for  $a = \frac{174-2j}{2}$

Then reformulate the area  $J = j \times a = 87j - j^2$  which turns out to be a quadratic Parabola:



Compute the vertex  $\frac{174}{4}$  and then plug the vertex into the area which will compute the maximum area.