3.

3. There are 3 sides to fence, two sides with length b and one side with length a:

$a + b + b = 3581 \implies a = 3581 - 2b$

Now compute the area:

$\text{area} = a \times b = (l - 2b)b = 3581\,b - 2\,b^2$

Notice the Parabolic formula, compute the vertex:

$\text{vertex} = (\frac{3581}{4} \text{ meters} , \frac{12\,823\,561}{8} \text{ meters}^2)$

Square the unit for vertex's vertical coordinate since it is a quadratic.