

3.

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

$$a+b+b=3857 \Rightarrow a=3857-2b$$

Now compute the area:

$$\text{area}=a \times b = (1-2b) b = 3857 b - 2 b^2$$

Notice the Parabolic formula, compute the vertex:

$$\text{vertex} = \left(\frac{3857}{4} \text{ m} , \frac{14\,876\,449}{8} \text{ m}^2 \right)$$

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