

1.

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

$$a+b+b=4866 \implies a=4866-2b$$

Now compute the area:

$$\text{area}=a \times b = (4866-2b)b = 4866b - 2b^2$$

Notice the Parabolic formula, compute the vertex:

$$\text{vertex} = \left(\frac{2433}{2} \text{ meters}, \frac{5919489}{2} \text{ meters}^2 \right)$$

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