

2.

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

$$a+b+b=4671 \Rightarrow a=4671-2b$$

Now find the area:

$$\text{area}=a \times b = (4671-2b)b = 4671b - 2b^2$$

Notice the Parabolic formula, find the vertex:

$$\text{vertex} = \left(\frac{4671}{2} \text{ meters}, \frac{21818241}{8} \text{ meters}^2 \right)$$

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