

3.

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

$$a+b+b=4971 \Rightarrow a=4971-2b$$

Now find the area:

$$\text{area}=a \times b = (4971-2b)b = 4971b - 2b^2$$

Notice the Parabolic equation, find the vertex:

$$\text{vertex} = \left( \frac{4971}{4} \text{ m}, \frac{24710841}{8} \text{ m}^2 \right)$$

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