

3.

3. Since the fences enclose a rectangular plot without one side, two sides have length  $b$  and one side has length  $a$ :

$$a+b+b=4391 \implies a=4391-2b$$

the area:

$$\text{area}=a \times b = (4391-2b)b = 4391b - 2b^2$$

Note that the equation is for parabola. Now solve for the vertex:

$$\text{vertex} = \left( \frac{4391}{4} \text{ yards}, \frac{19280881}{8} \text{ yards}^2 \right)$$

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