

4.

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

$$a+b+b=4927 \implies a=4927-2b$$

the area:

$$\text{area}=a \times b = (4927-2b)b = 4927b - 2b^2$$

Note that the function is for parabola. Now find the vertex:

$$\text{vertex} = \left(\frac{4927}{4} \text{ feet}, \frac{24275329}{8} \text{ feet}^2 \right)$$

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