

3.

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

$$a+b+b=2487 \implies a=2487-2b$$

the area:

$$\text{area}=a \times b = (1-2b)b = 2487b - 2b^2$$

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

$$\text{vertex} = \left(\frac{2487}{4} \text{ yd} , \frac{6185169}{8} \text{ yd}^2 \right)$$

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