4.

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

$a + b + b = 1923 \implies a = 1923 - 2b$

the area:

$area = a \times b = (l - 2b)\, b = 1923\, b - 2\, b^2$

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

$vertex = (\, \frac{1923}{4} \text{ meters} \,,\, \frac{3\,697\,929}{8} \text{ meters}^2 \,)$

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