4.

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

$a + b + b = 1993 \implies a = 1993 - 2b$

the area:

$area = a \times b = (l - 2b) b = 1993\,b - 2\,b^2$

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

$vertex = (\frac{1993}{4}$ feet $, \frac{3\,972\,049}{8}$ feet^2 $)$

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