2.

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

$a + b + b = 4376 \implies a = 4376 - 2b$

the area:

$area = a \times b = (l - 2b) b = 4376\,b - 2\,b^2$

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

$vertex = (1094 \text{ meters} , 2\,393\,672 \text{ meters}^2)$

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