4.

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

$a+b+b=4942 \implies a=4942-2b$

the area:

$area=a \times b=(l-2b)b= \ 4942 \, b - 2 \, b^2$

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

$vertex= \ (\frac{2471}{2} \ meters \ , \ \frac{6\,105\,841}{2} \ meters^2 \ )$

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