4.

4. There are 3 sides to fence, two sides with length b and one side with length a:

$a + b + b = 4119 \implies a = 4119 - 2b$

Now compute the area:

$area = a \times b = (l - 2b)b = 4119\,b - 2\,b^2$

Notice the Parabolic equation, compute the vertex:

$vertex = (\frac{4119}{4} \text{ m} , \frac{16\,966\,161}{8} \text{ m}^2)$

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