4.

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

$a+b+b=1405 \implies a=1405-2b$

Now solve for the area:

$area=a\times b=(l-2b)b= 1405\, b - 2\, b^2$

Notice the Parabolic function, solve for the vertex:

$vertex= (\frac{1405}{4}\ m\ ,\ \frac{1\,974\,025}{8}\ m^2\ )$

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