3.

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

$a+b+b=4537 \implies a=4537-2b$

Now solve for the area:

$area=a \times b=(l-2b)b= 4537 b - 2 b^2$

Notice the Parabolic equation, solve for the vertex:

$vertex= (\frac{4537}{4}$ yards $, \frac{20\,584\,369}{8}$ yards$^2)$

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