4.

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

$a+b+b=4757 \implies a=4757-2b$

Now solve for the area:

$area=a \times b=(l-2b)b= \ 4757 \, b - 2 \, b^2$

Notice the Parabolic equation, solve for the vertex:

$vertex= (\frac{4757}{4} \text{ yards} , \frac{22\,629\,049}{8} \text{ yards}^2)$

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