2.

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

$a+b+b=4580 \implies a=4580-2b$

the area:

$area=a \times b=(l-2b)b= 4580b-2b^2$

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

$vertex= (1145 \text{ yards} , 2622050 \text{ yards}^2)$

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