2.

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

$a+b+b=1081 \implies a=1081-2b$

the area:

$area=a \times b=(l-2b)b=1081b-2b^2$

Note that the formula is for parabola. Now solve for the vertex:

$vertex=(\frac{1081}{4} \text{ yards}, \frac{1168561}{8} \text{ yards}^2)$

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