4.

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

$a+b+b=2245 \implies a=2245-2b$

the area:

$area=a \times b=(l-2b)b= 2245 b - 2 b^2$

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

$vertex= (\frac{2245}{4} \text{ feet }, \frac{5\,040\,025}{8} \text{ feet}^2)$

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