4.

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

$a + b + b = 1242 \implies a = 1242 - 2b$

Now compute the area:

$area = a \times b = (l - 2b)b = 1242\,b - 2\,b^2$

Notice the Parabolic formula, compute the vertex:

$vertex = (\frac{621}{2}\ ft\ ,\ \frac{385\,641}{2}\ ft^2\ )$

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