

3.

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

$$a+b+b=1212 \Rightarrow a=1212-2b$$

Now compute the area:

$$\text{area}=a \times b = (1212-2b)b = 1212b - 2b^2$$

Notice the Parabolic function, compute the vertex:

$$\text{vertex} = (303 \text{ yd}, 183618 \text{ yd}^2)$$

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