

4.

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

$$a+b+b=1228 \implies a=1228-2b$$

Now compute the area:

$$\text{area}=a \times b = (1228-2b)b = 1228b - 2b^2$$

Notice the Parabolic function, compute the vertex:

$$\text{vertex} = (307 \text{ yards}, 188498 \text{ yards}^2)$$

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