

3.

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

$$a+b+b=2946 \implies a=2946-2b$$

Now find the area:

$$\text{area}=a \times b = (l-2b)b = 2946b - 2b^2$$

Notice the Parabolic formula, find the vertex:

$$\text{vertex} = \left(\frac{1473}{2} \text{ m}, \frac{2169729}{2} \text{ m}^2 \right)$$

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