

4.

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

$$a+b+b=1275 \Rightarrow a=1275-2b$$

Now compute the area:

$$\text{area}=a \times b = (1275-2b)b = 1275b - 2b^2$$

Notice the Parabolic formula, compute the vertex:

$$\text{vertex} = \left(\frac{1275}{4} \text{ m}, \frac{1625625}{8} \text{ m}^2 \right)$$

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