

4.

4. Since the fences enclose a rectangular plot without one side, two sides have length b and one side has length a :

$$a + b + b = 1200 \implies a = 1200 - 2b$$

the area:

$$\text{area} = a \times b = (1200 - 2b)b = 1200b - 2b^2$$

Note that the function is for parabola. Now compute the vertex:

$$\text{vertex} = (300 \text{ ft}, 180000 \text{ ft}^2)$$

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