

4.

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

$$a+b+b=1251 \implies a=1251-2b$$

the area:

$$\text{area}=a \times b = (1251-2b)b = 1251b - 2b^2$$

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

$$\text{vertex} = \left( \frac{1251}{4} \text{ yd} , \frac{1565001}{8} \text{ yd}^2 \right)$$

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