

4.

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

$$a + b + b = 4188 \implies a = 4188 - 2b$$

the area:

$$\text{area} = a \times b = (4188 - 2b)b = 4188b - 2b^2$$

Note that the formula is for parabola. Now find the vertex:

$$\text{vertex} = (1047 \text{ m}, 2192418 \text{ m}^2)$$

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