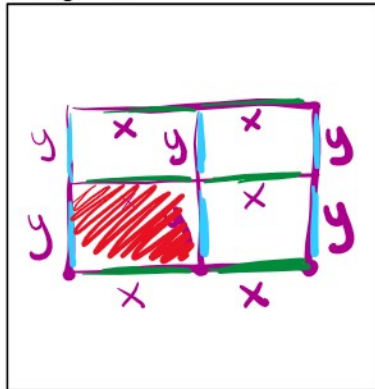


Perimeter vs. Area Notes

Wednesday, June 12, 2019 12:04 PM

A farmer has 1200 ft of fencing to enclose 4 adjacent rectangular fields in a 2x2 grid. Determine the dimensions that would maximize the area of each field. What is the area of each field?

Diagram:



Equation A: $1200 = 6x + 6y$
(given info)

Equation A:
(new version)

$$y = 200 - x$$

Equation B: $A = x \cdot y$
(max/min)

Equation B:
(new version)

$$A = x(200 - x)$$

$$A = 200x - x^2$$

Equation B: $A' = 200 - 2x$
(1st derivative)

$$200 - 2x = 0$$

$$+2x \quad +2x$$

$$\frac{200}{2} = \frac{2x}{2}$$

$$x = 100$$

$$y = 200 - 100$$

$$y = 100$$

$$1200 = 6x + 6y$$

$$-6x \quad -6x$$

$$\frac{1200 - 6x}{6} = \frac{6y}{6}$$

$$200 - x = y$$

$$A = 100 \cdot 100 = 10,000$$

Length: 100 ft

Width: 100 ft

Area: $10,000 \text{ ft}^2$