1. In the diagrams (a)-(c), the black lines represent a fence enclosing a field; some of the fencing divides the field into parts.

a. 

b. 

c. 

Total length of fencing (in terms of $x$ and $y$):

a. $L(x, y) =$ 

b. $L(x, y) =$ 

c. $L(x, y) =$ 

Total Area of the field (in terms of $x$ and $y$):

a. $A(x, y) =$ 

b. $A(x, y) =$ 

c. $A(x, y) =$ 

Suppose that the fencing that runs left-to-right costs [ ] dollars per foot, and the fencing that runs up-to-down costs [ ] dollars per foot. Write a cost function for each of the fences.

Total cost of the fencing (in terms of the lengths $x$ and $y$, in feet):

a. $C(x, y) =$ 

b. $C(x, y) =$ 

c. $C(x, y) =$ 

For each of the following, problems, determine the objective function and the constraint equation.

2. A farmer wants to build a fence in the configuration (a) above, with a total area of 3000 square feet. The internal fencing costs [ ] per foot, and then fencing around the outside costs [ ] per foot. What are the dimensions of the field that will minimize the cost of fencing?

The Objective function is the (circle one) length of fence / area / cost.

Objective function (in terms of $x$ and $y$): 

Constraint equation (equation with $x$ and $y$): 

3. A farmer wants to build a fence in the configuration (a) above. The internal fencing costs [ ] per foot, and then fencing around the outside costs [ ] per foot. What are the dimensions of the field that will have the maximum area and can be fenced for $540? 

The Objective function is the (circle one) length of fence / area / cost.

Objective function (in terms of $x$ and $y$): 

Constraint equation (equation with $x$ and $y$): 

4. Do Off-line Homework 5.3 WebAssign Section 5.3 #13.