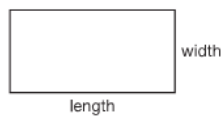


LESSON 1.4 Assignment
1

Name _____ Date _____

Water Under the Bridge
Modeling with Functions

1. Mr. Jones wants to fence in a rectangular field for his horse using the 600 feet of fence he has stored in his barn. He wants to maximize the area of the field in order to give his horse the most pasture possible. Help Mr. Jones design his field to achieve the maximum area.



- a. Complete the table to show the length of the field for each given width.

Width (feet)	0	50	100	150	200	250	300
Length (feet)							

- b. Define the function $\ell(w)$ to represent the length of the field as a function of the width. Explain your reasoning.
- c. Define the function $A(w)$ to represent the area of the field as a function of the width. Explain your reasoning.
- d. Determine the maximum area of the field as well as the length and width that will result in the maximum area. Explain your reasoning.

1

LESSON 1.4 Assignment

page 2

2. Mrs. Williams wants to fence in a rectangular area of her field using the 1200 feet of fence she has. She wants the area to have four congruent sections. She is trying to decide which of the two designs shown will give her animals the maximum fenced area.



Determine the design and the dimensions of the design that will give Mrs. Williams the maximum fenced area. Show your work and explain your reasoning.