Name _____

Homework 13
Section 2.2/
Summation notation

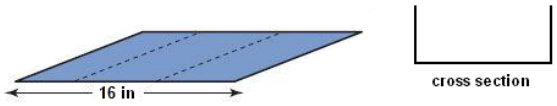
Answers need to be found algebraically. Simply using a calculator will not be sufficient for receiving credit.

1. (4) Dennis the mad scientist determines that his profit, in hundreds of dollars, from raising and selling x emus is given by the function

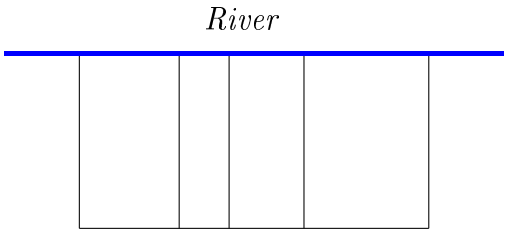
$$P(x) = -0.1x^2 + 17.2x - 108.$$

How many emus should he raise in order to maximize his profit?

2. (5) An industrial rain gutter is constructed by folding the edges of a sheet of metal 16 inches wide so that the cross section of the gutter is a rectangle. How much edge should be folded up on each side to maximize the area of the cross section?



3. (5) A farmer plans to construct 4 adjacent pens with one edge along a river, as shown below. If the farmer has 1400 yards of fencing, what is the maximum total area that he can enclose? *No fencing is needed along the river.*



4. (3ea) Expand and compute the following sums:

   (a) $\sum_{n=1}^{5}(n(n^2+1))$

   (b) $\sum_{i=4}^{12}\frac{i-2}{3}$