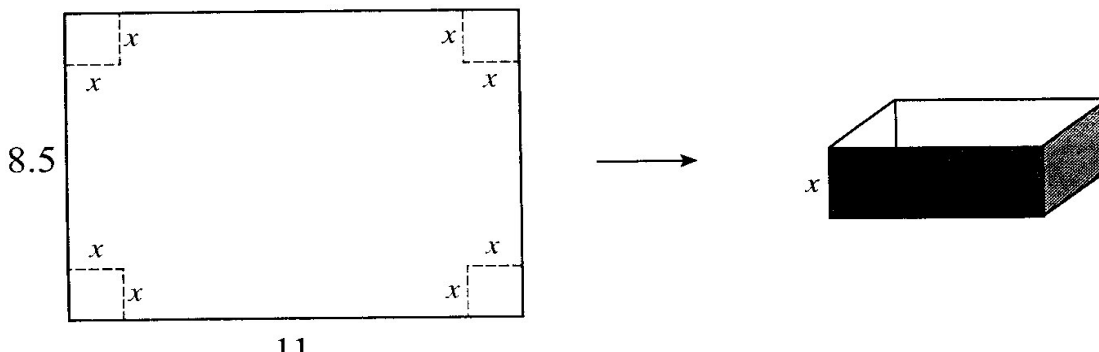


Math 195Q and Math 101

Group Work on Polynomials: The Largest Box

You are going to construct the largest box you can from a sheet of standard 8.5" x 11" notebook paper. Ready? Cut identical squares of side length x from each corner, and fold up the sides, like this:



a. Write each side of the box as an expression in x .

b. Express the volume of the box as a function of x . Call it $y = V(x)$.

c. What is the domain of $V(x)$?

d. Calculate the following values of $V(x)$, and use them to graph the function $y = V(x)$ on a separate sheet of paper.

$V(0) =$

$V(1) =$

$V(1.5) =$

$V(2) =$

$V(2.5) =$

$V(3) =$

$V(4) =$

$V(4.25) =$

e. Use the graph to estimate the largest possible volume of your box. For what x are you going to obtain this biggest box?

Largest Volume =

Obtained at $x =$