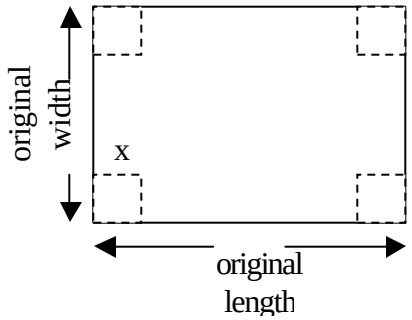
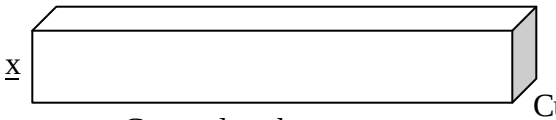
The Biggest Box Activity **Name:**

Part 1. You will be using a physical model and a graphing calculator to help you find the volume of the biggest open box you can make given a single sheet of paper. Your formula should be able to calculate containers made from sheets of paper of various sizes.

Enter square cut out values (x) into your table and calculate the volume until you get an approximation of the largest container volume obtainable for your paper.

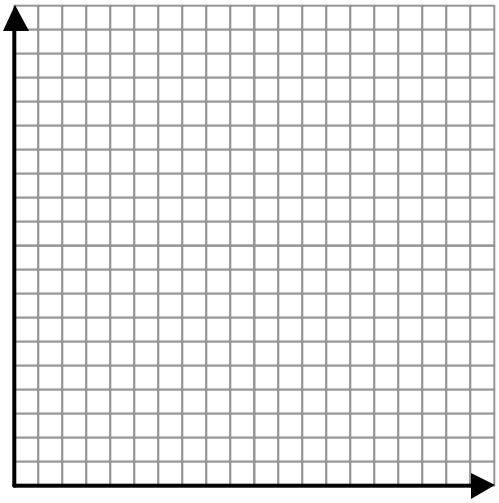




Volume Activity						
Original Length	Original Width	Size of cut out x (L1)	Dimensions of container			Volume y (L2)
			Length	Width	Height	
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					
8.5	11					

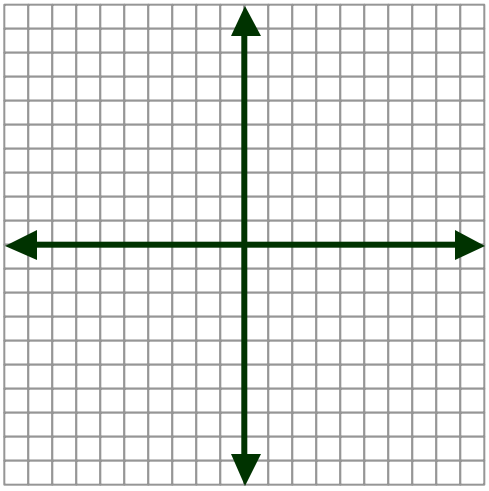
Part 2. When you have about 10 entries showing an increase then decrease of volume, make a scatter plot of your table using the cut out data x in List1 and the corresponding volume data in List2. Adjust the window size using the Zoom key -choose 9: ZoomStat. Sketch the graph of your plot.

1. Describe the shape of your plot.



2. Using your model and the figure in part 1, determine a formula for calculating the volume of your open box. Enter the equation in your calculator using the y = key. Did the graph hit your points?

3. Ignoring the restrictions of the cut out x, look at a more complete picture of your volume function by changing the window size of your graph: use xmin=-10, xmax=10, xsc1=1, ymin= -100, ymax=75. What did you notice?



4. What did you learn from this activity?