

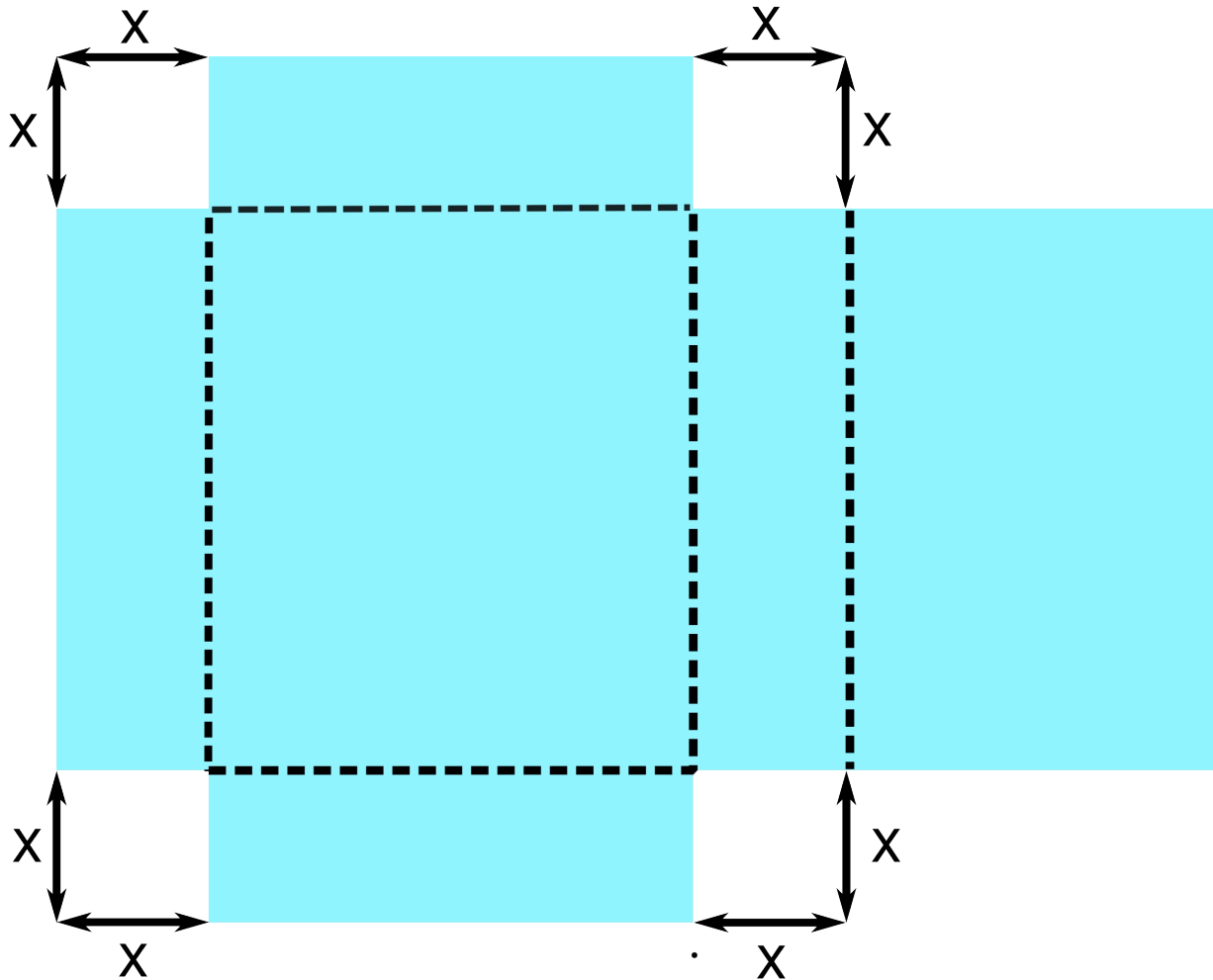
## ***Optimization***

### The Box Competition

#### **Box #1:**

Create a box with a lid. A piece of paper measures 8.5 inches by 14 inches. Two equal squares are removed from the corners of a 8.5 inch side as shown in the figure. Two equal rectangles are removed from the other corners so that the tabs can be folded to form a rectangular box with lid.

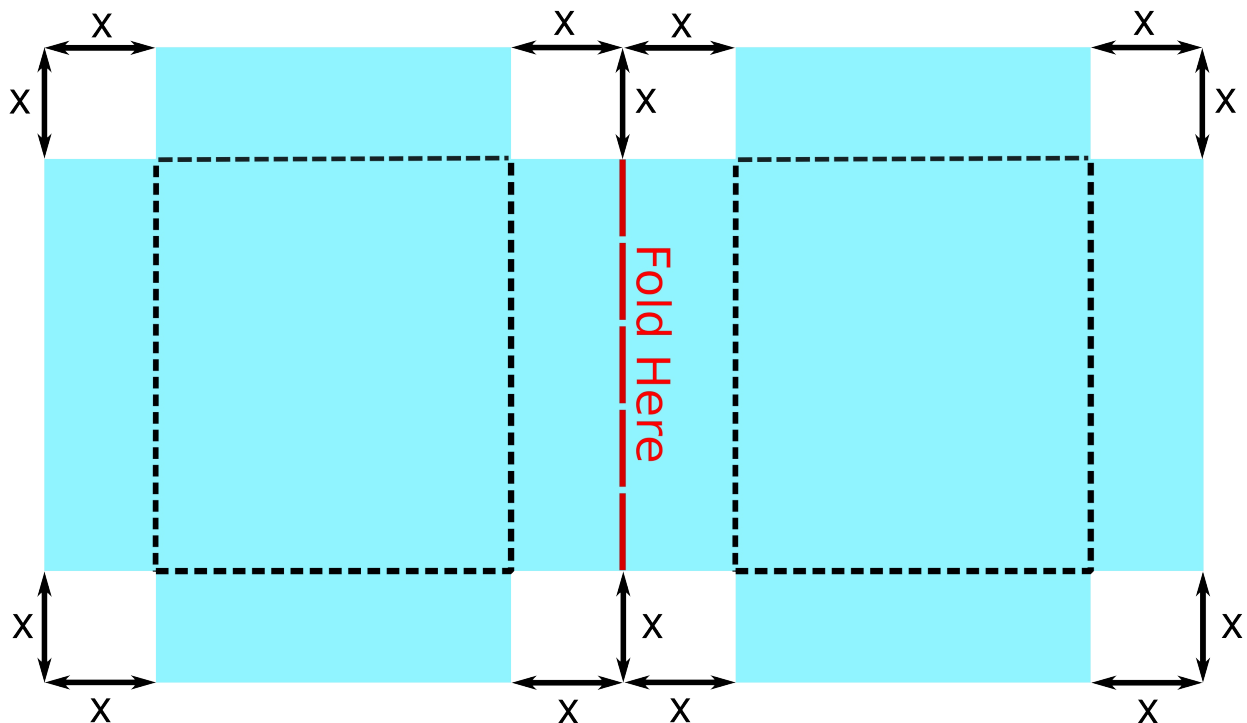
CHALLENGE... The group whose box has the largest volume WINS!



## Box #2

Create a (suitcase) box. A piece of paper measures 8.5 inches by 14 inches is folded in half to form a 8.5 by 7 inch rectangle as shown in the figure. Then four congruent squares of side length  $x$  are cut from the corners of the folded rectangle. The sheet is unfolded and the six tabs are folded up to form a box with sides and a lid.

CHALLENGE... The group whose box has the largest volume WINS!



### The Box Competition Rules

- You may use only the paper, scissors, tape, a ruler, a calculator and your brain.
- You will have 18 minutes to create your box and find its volume.
- Be sure to record the side length of your congruent squares, the dimensions of your box and the volume of your box.