Optimizing Volume of a Box Using Matlab

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You are given a piece of paper with length 50cm and width 20 cm. You are expected to fold this paper into a topless box after cutting the corners of the paper as shown in Fig.1. Find the dimensions of the box giving the maximum volume using MATLAB.
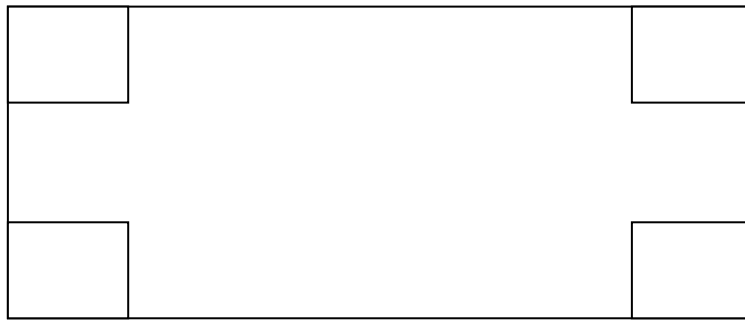

Fig. 1

1- Find a formula for the volume (V) of the box as a function of one variable (x)

2- Use Matlab, evaluate the Volume function, V(x), for the entire *practical* values of x function.

3- Use Matlab, plot Volume, V, versus x--using date obtain in part 2

4- Using part 2 and 3, what is the maximum volume of the box?

5- Find the dimensions of the box with maximum volume (length, width, height).

Note: For questions 4 & 5, you must use matlab code, you cannot determine the values from the graph.

 (Include equations, MATLAB code, etc)