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- f. Draw and label your graph shown on the graphing calculator in the space below.

- g. Which portion of the graph will be utilized pertaining to volume? Why?

- h. What are the potential values of x ?

- i. What is the maximum volume capacity of the box?

- j. What size square should be cut out of the corners of the metal to create a box with the maximum volume?

- k. What are the dimensions of the box with the greatest volume?

- l. Create a box template out of regular paper or cardstock.
Note: While the open top metal box will have its edges welded together, the open top cardstock template box will have its edges taped together.

2. For your second project you have been assigned the task of creating an open top electrical box with a volume of 500 cubic inches. Before working on the project, the journeyman that you are working under as an apprentice wants you to watch the following video and then do your calculations...
Check out the video at: https://youtu.be/-yprjREm1_I
- a. Draw a 20 inch by 18 inch rectangular piece of metal with equal squares, x by x , cut out at each corner.

 - a. Sketch a 3D picture of the box that would be formed by bending up the sides.

 - b. Create a function to model the volume of the box.

 - c. Determine the potential values of x to create a box with a volume of 400 cubic inches.

 - d. What x value will you use? Why?

 - e. What are the dimensions of the box that you will create?

 - f. If time, check out the second phase of the project to be completed by an electrician:
https://youtu.be/-yprjREm1_I
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