

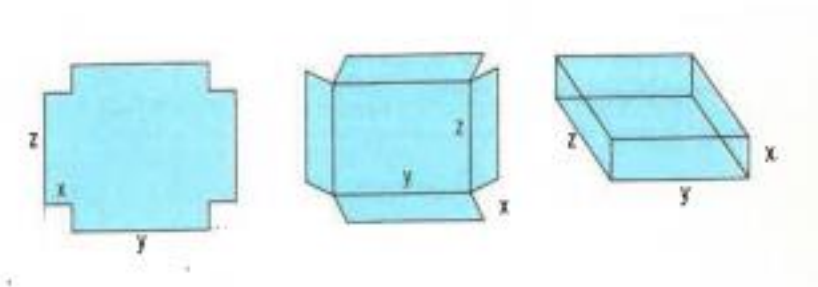
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CS 1300

Formal Program

Problem: You have been given a flat cardboard area to make an open box by cutting a square from each corner and folding the sides.



The objective is to determine the dimensions (length and width) and the size of the square to be cut from the corners so that the resulting box is of maximum length.

Write a program that prompts the user to enter the area of the flat cardboard. The program will output the length and width of the cardboard and the size of one of the sides of the square which will be cut from the corners and the resulting volume of the box (which needs to be the maximum volume that can be obtained from the original cardboard.)

What we have:

- Area formula
 - $\text{Length} \times \text{width} \times \text{height}$
- Equation to find Length, Width, and the size of one of the sides of the square which will be cut from the corners
 - $x = \sqrt{A}/6$ units
 - x = the size of one of the sides of the square which will be cut from the corners
 - $y = 2 \times \sqrt{A}/3$ units
 - y = width
 - $z = 2 \times \sqrt{A}/3$ units
 - z = length
- Equation for the max volume
 - $2 \times A^{(3/2)}/27$ cubic units

What will be given:

- Area

What we need to figure out:

- x
- y
- z

Reflection

First, when I was reading what I was supposed to be coding I knew exactly how I was going to write it. The only struggle I was going to run into was figuring out what the equations were for x , y , and z . Since you provided the equation, it made things a lot easier. What I had to do was input to area from a file and plug in the equations. Once I found out what x , y , and z were, all I had to do next was output them into a file.