SI@UCF Nested Loop Problem: Printing Out a Tire

You are sick and tired of calculating fuel efficiency, so you decide that your car's computer needs a feature that's more fun. You decide it would be cool to write a program to print out what a tire looks like, at least in two dimensions. There are two pieces of input you receive from the user: the number of "pixels" the outer radius of the tire is, *r1*, and the number of "pixels" the inner radius of the tire is, *r2*. Using these two pieces of information, you are to print out a grid with the size *2*r1+1* by *2*r1+1*, that displays the wheel. In particular, wheel "pixels: will be designated by the character '*'. These will be the "pixels" that are in between *r2* and *r1* "pixels" away from the center of the grid. "Pixels" that are farther away from the center of the grid than this will represented by the ' ' character. Pixels that are less than *r2* "pixels" away from the center will represent the tire and will be drawn with the '+' character. Finally, "pixels" that are one pixel or closer to the center of the grid (there will always be five of these), will be drawn with the 'X' character.

Input Specification

1. *r1*, the outer radius, will be a positive integer less than 50.
2. *r2*, the innter radius, will be a positive integer less than *r1*.

Output Specification

1. Wheel characters will be represented by the character '*'.
2. Tire characters will be represented by the character '$'.
3. Axle characters will be represented by the character '+'.

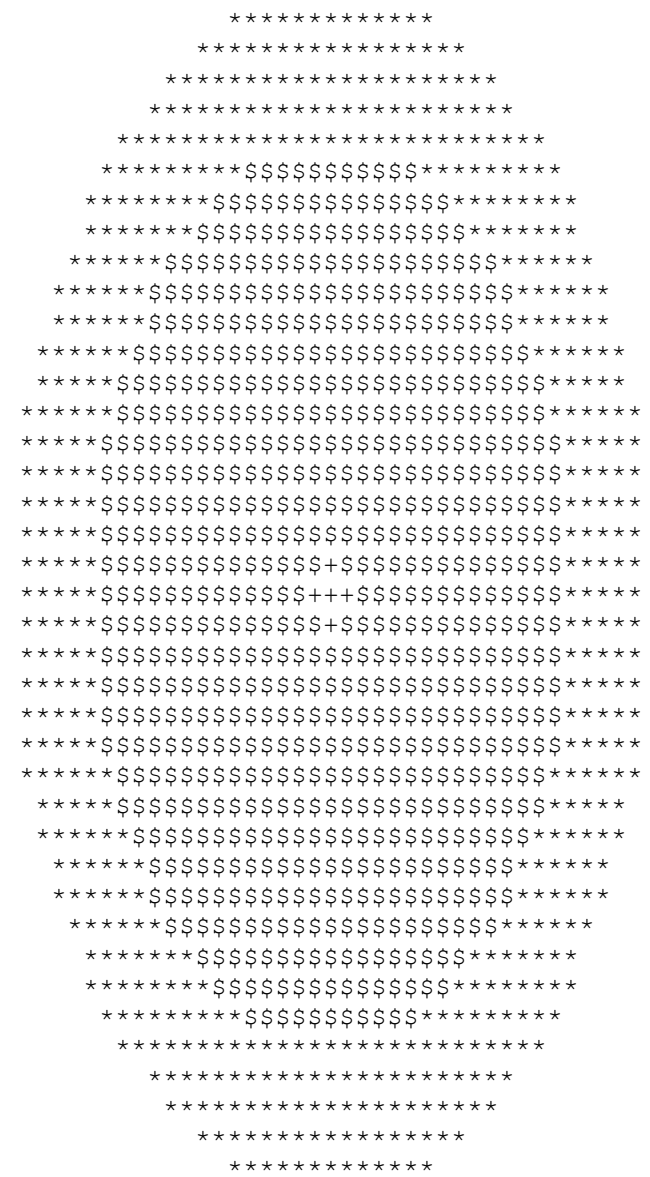
The "grid" that gets outputted should be indexed from –r1 to r1, in both rows and columns. The final product should resemble what a wheel looks like, viewed from the side of a car. **Hint: Loop through each grid square, and when you get to that square, decide which character is supposed to be printed based on that square's distance from the center square, (0,0).**

Output Samples

Here are two sample outputs of running the program. Note that these samples are NOT a comprehensive test. You should test your program with different data than is shown here based on the specifications given above. The user input is given in *italics* while the program output is in bold.

Sample Run #1

Enter the outer radius of your wheel?
20
Enter the inner radius of your wheel?
15



Sample Run #2

Enter the outer radius of your wheel?
14
Enter the inner radius of your wheel?
6