

Write a program that uses recursion to draw squares- one square on the corner of each square. You can write an applet or a standalone GUI program. Either is fine.

## Requirements

Your program should have instance data that defines:

- the initial size of the largest square
- the minimum length of a size of a square
- by what factor you shrink the size for each round of squares

Your program will include a recursive method to draw a square.

- The method should draw one square (the small part of the problem it solves now).
- The method should then recursively call itself to draw the four squares at the corner of the current square. (The sides of these smaller squares are reduced by some factor.)
- The recursive method should be initially invoked once from the paint or paintComponent method.
- Consider:
  - What parameters should that method have?
  - What initial values are sent into the first call to this method?
  - When does the method stop (what is the base case)?

## Notes

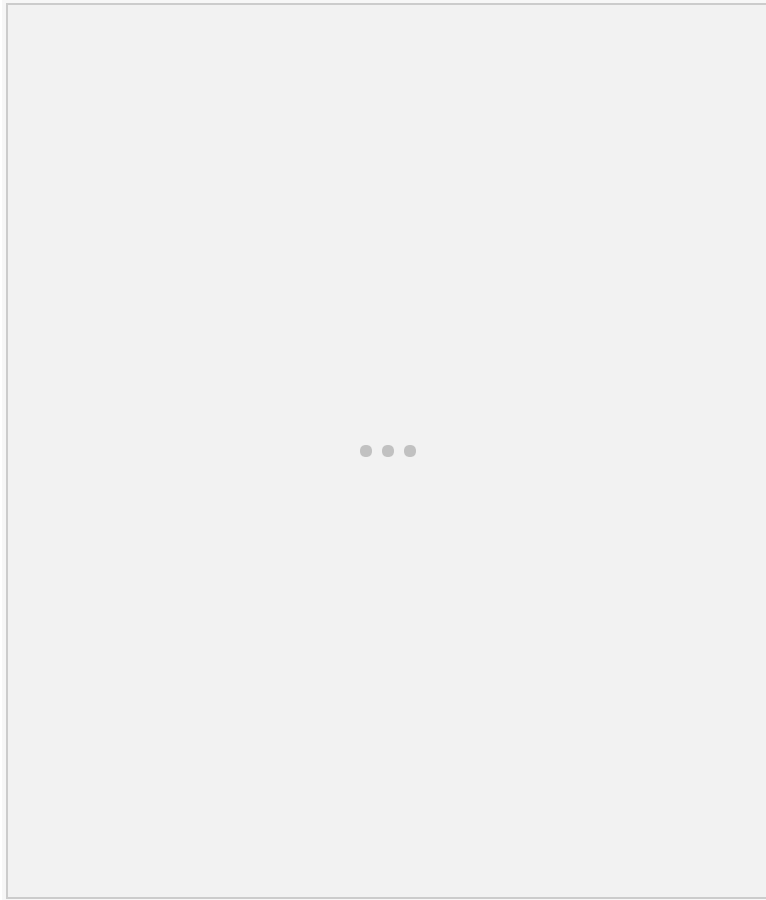
- In my sample below, I use an initial side length of 200, a minimum side length of 10, and I cut the size of a side in half each time.
  - You do not have to use these values- experiment with your own.
  - In the sample, I fill the square in gray and then draw the outline in black. You are not required to do this.
  - I include a couple versions of the sample output below. You only need to submit one version of your program.
- I recommend first getting the program working with using a method to draw a single square.
- I strongly recommend sketching out the coordinates on paper before attempting to put them into code.
- I have provided template code that you can use to start from for an applet or a standalone program. You are not required to use this.

## Extra Credit

(15 points) Instead of drawing a square, draw a different polygon (e.g., any closed-sided figure but not a circle, square, or rectangle). It could be a triangle, parallelogram, trapezoid, be creative!

Note: If completing the extra credit, you do **not** need to do both the square version and the extra credit- you can complete **only** the extra credit.

### Sample Output



If you want to see what this looks like with fewer squares, to get a better sense of what is going on, here are two images that use a minimum side length of 50 and 100.



