This week's lab exercises ask you to use recursion to draw figures that have a recursive structure.

1. Download and run the program `recsquares.py`. Then study the code to see what makes it tick. At the heart is a function called `draw_squares` that draws a square with a given center and side length. The recursive procedure `draw_recursive_squares` has the following structure:

   To draw a recursive square with center \((x,y)\) and side length \(s\):
   
   - Draw a square with center \((x,y)\) and side length \(s\).
   - Draw a recursive square with center \((x-s/4,y-s/4)\) and side length \(0.4s\).
   - Draw a recursive square with center \((x+s/4,y+s/4)\) and side length \(0.4s\).

   So the picture contains two smaller copies of itself, one in the upper left corner, and one in the lower right corner.

2. Experiment with the code by altering some of the constants it contains: For example, see what happens when you change the shrink factor 0.4 to something bigger (try 0.5 and 0.6). What happens when we alter the `bottoming-out condition` so that it is `side>=2`, or `side>=0`? Before you do these, try and figure out what the result will look like.

3-5. Modify the function `draw_recursive_squares` to create new functions `draw_recursive_squares2`, `draw_recursive_squares3`, and `draw_recursive_squares4` that produce the following pictures.
6. Why is there a picture of a box of cocoa on this assignment?