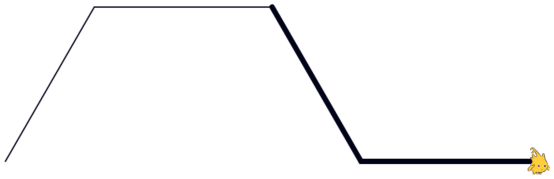
CS10 With-Snap! Midterm (Fall 2018, Sec 1)

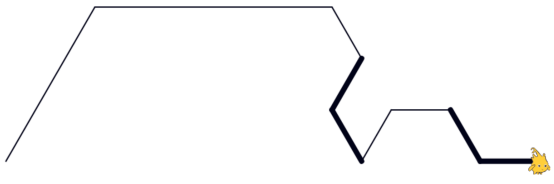
Below are screenshots of the first four iterations of a beautiful fractal. Write code that generates the fractal (you don't have to match our exact placement on the screen), and name it **`FractalYourfirstnameYourlastname.xml`** (e.g., **`FractalAlanTuring.xml`**). Also, save a PNG image of the *fifth* (**`n = 5`**) iteration and name it similarly, (e.g., **`FractalAlanTuring.png`**). To save a PNG image of the stage, right-click (or control-click) on the stage and choose *"pic..."*, then in the new tab right-click (or control-click) the image and save the file to the Desktop. Submit both on bCourses under the "with-Snap!" midterm assignment for the lab section you are in.

Though this may look daunting at first, it isn't that bad. Remember, every fractal has a base case (**`n = 1`**) and recursive case. We've drawn the fractal with **bold** lines to indicate the parts of the drawing that recurse; the other parts of the drawing at **`n = 2`** are just lines. (You don't have to copy our bold/normal style, it's ok if it's all the same.) Look at how the straight line at **`n = 1`** transforms into the **`n = 2`** case – this happens for *every* bold line at the next level. *The <u>four</u>* **`n = 2`** *lines are 1/3 the length of the* **`n = 1`** *line. Also, the sprite turns 60º, and ends facing the same way it began.*

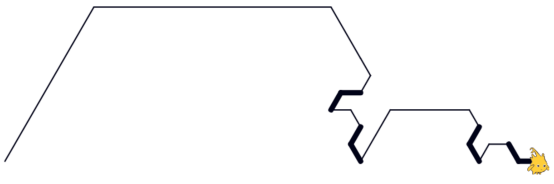
`n = 1`



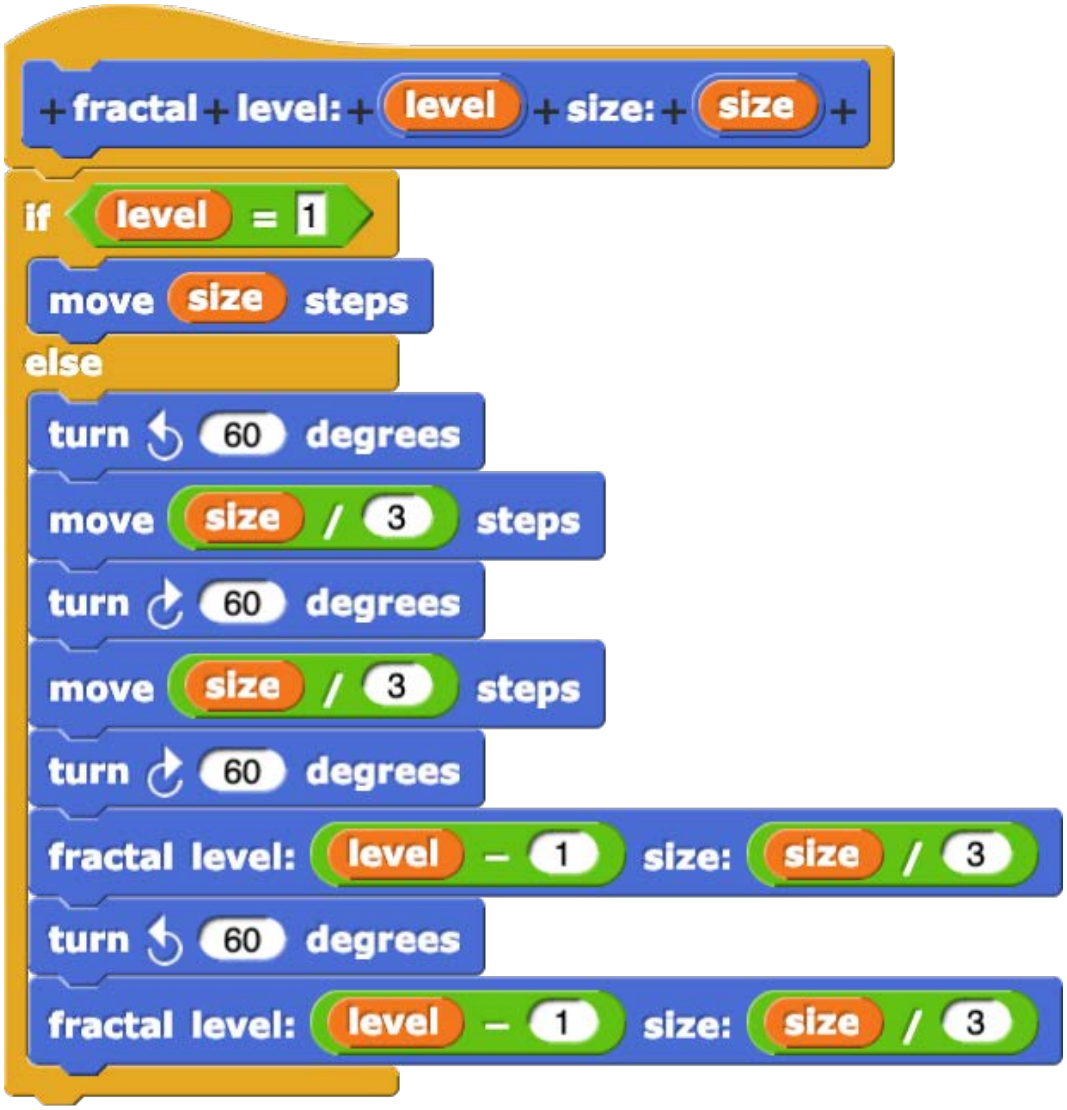
`n = 2`



`n = 3`



`n = 4`


+ fractal + level: + level + size: + size +
if level = 1
move size steps
else
turn 60 degrees
move size / 3 steps
turn 60 degrees
move size / 3 steps
turn 60 degrees
fractal level: level – 1 size: size / 3
turn 60 degrees
fractal level: level – 1 size: size / 3