Introduction to Programming

Turtles Turtles Everywhere!

Write the following seven turtle programs.

1. Write a program to produce a **staircase** with n stairs. The one below shows the case when n=5.

   ![Staircase](image)

   How: I would write a function called `stair()` which, when called, will draw one “stair”, i.e. a line up and a line to the right. You main program will prompt the user for the number of stairs. It will then, in a for loop, call `stair` the appropriate number of times. Don’t forget to finish by drawing a line down and then one to the left.

2. Write a program to draw a circle.

   ![Circle](image)

   Question to think about: how would you write a function `draw_circle(d)` that takes a diameter d as a parameter and draws a circle with diameter d (pixels).

3. Write a program to draw a 5-pointed star.

   ![Star](image)

4. Write a program to draw a pentagon.

   ![Pentagon](image)
5. Write a program to draw a hexagon.

![Hexagon Diagram]

6. An n-sided **regular polygon** is a **polygon** with n sides that is **equiangular** (all angles are equal in measure) and **equilateral** (all sides have the same length). The pentagon and hexagon above are 5 and 6 sided convex (interior angles are <180 degrees) for n equal 5 and 6.

Write a function `draw_poly(n)` which will draw an n-sided regular convex polygon. If you pass in 5 and 6 for n, you should get the figures above.

Question to think about: Can you use your function to draw a circle?

7. Write a program to draw a donut.

![Donut Diagram]

This one is a bit more difficult than the others ….