For the creation of the 9-sided figure in the first part of the question, the amount of sides to rotate around was determined by theta, at which point sine and cosine are used to determine the x and y coordinates according to the radian circle. The vertices are created by creating two points across the Z axis then rotating the entire structure by theta again. At this point, the sides are created by first creating the lines between the sides (the i<2 section of the code) then applying lines to the sides. Finally, the edges are created by a similar method except, instead of multiplying by 2, we are modding the value by the number of vertices.

I attempted to get the Brownian motion fly to work by modifying the 2D version of the fly, but found no success. A few extra ways to determine the outside were developed to no avail. For example, the exit point was now to be determined by checking the current node’s location against the location of each side, but all it results in is one side highlighting black.

Question 2 was skipped as my focus was on Question 1 and 3.

Question 3 was accomplished using the motion method. The mouse captures the current location of the pointer, which is then relayed to motion. The angle is determined by the previous angle and the pointer’s relation to the window, which is then rotated by moving the mouse. The level of rotation is determined by the amount of change and redrawn immediately.