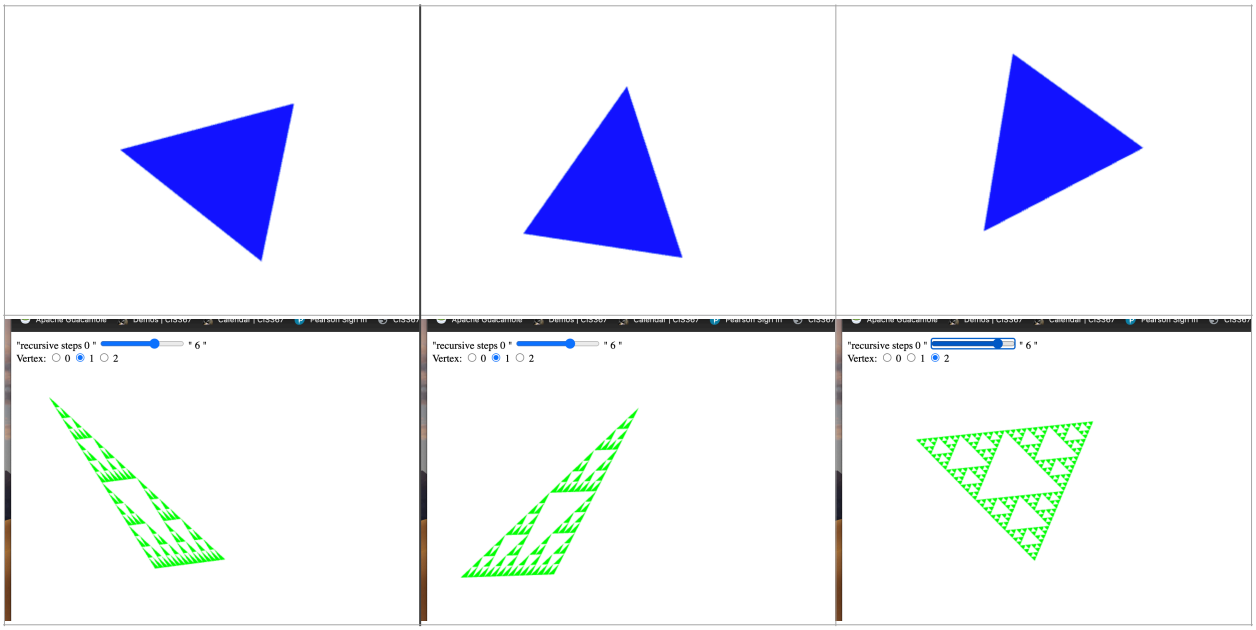
Lab Report / Homework: Andrew Goodling

1) Paste all screenshots here



2) What is the purpose of gl_Position.w?

It is used to scale the position vector, during perspective calculations original depth is modified by the original.

3) What happened after you added the initial code to triangle's render function and what do you have to do to fix it?

It flew to the top right and directly off the screen, we need to bound it by the border I'd assume

4) Assuming everything works fine with your animated moving triangle, add a delay so that it doesn't update as quickly as possible. Add a 100ms delay between each call to render. Copy and paste your code below. (Hint, see the slide titled 'Adding an Interval').

Render Function after adding interval.

```
function render() {
    x += 0.05 * xDir;
    y += 0.1 * yDir;

    if (y > 0.9) { // top hit
-- reverse y but keep x
        y = 0.9;
        yDir *= -1.0;
    }
    if (x > 0.9) { // right hit
-- reverse x but keep y
        x = 0.9;
        xDir *= -1.0;
    }
    if (y < -0.9) { // bottom
hit -- reverse y but keep x
        y = -0.9;
        yDir *= -1.0;
    }
    if (x < -0.9) { // left hit
-- reverse x but keep y
        x = -0.9;
        xDir *= -1.0;
    }


    setTimeout( function(){

requestAnimationFrame(render);
    gl.uniform1f(xLoc, x);
    gl.uniform1f(yLoc, y);


gl.clear(gl.COLOR_BUFFER_BIT);
    gl.drawArrays(gl.TRIANGLES,
0, 3);
    }, 100);

}
```

5) Answer the question regarding console.log from the Sierpinski Clicker section.

The canvas(html) and the javascript have different mapping, so the mouse seems outputting the coordinates of the mouse on the canvas but we want them to be on a -1 -> 1 plane x and y.

6) Answer the question regarding the math surrounding the mouse click event.

This normalizes our points making the center of the screen be (0,0) and goes out to -1 to the left and down and up to 1 to the right/up.

7) Extend the Sierpinski in some fashion Take any iteration of the Sierpinski gasket and add an extra bit of pizzazz to it. Rotate it around an axis (or multiple axes). Make it interactive when you click. Basically, add some personal flair to this fractal. Name it gasket-extended.js/html and upload it to your website.

8) Make sure you link to it on your homepage so I can find it! • Describe your extension and how you had to modify the original code to get it.
It's under help but it's there

9) Copy and paste the URL of your homepage (just in case if it has changed)

https://agoodling.github.io/CIS367/

10) Time to start thinking about your term project. For this, briefly describe two ideas of what you would like to do. Note: you are not going to be held to these, but you will get feedback on them!

- **Some sort of open world game in unity**
- **A fluid of a water-fall with scenery in blender**