Assignment One

*Give me a place to stand, and I will move the Earth.*
-Archimedes

(Tuesday Workshop) Complete the survey and precalculus formula sheet handed out in class.

(Thursday Workshop) Work on the homework problems below.

1. Simmons section 1.5, problems 2b, 2c, 2d, 2f, 12, 13b, 13d, 13e, 13i, 15. Section 1.6, problems 1a, 1c, 1d, 2g, 2j, 5a, 5b. Section 2.5, problems 3, 4, 5, 7, 9, 11, 12, Section 2.6, problem 1.

2. Estimate the value of \( \lim_{x \to 0} \frac{\sin(x)}{x} \) using four different values of \( x \) close to 0. Guess the true answer. Do this with your calculator in radians and in degrees.

3. Give a piecewise formula for a function with all of the following properties, and sketch a graph:
   - Point discontinuity at \( x = -2 \)
   - Vertical asymptote at \( x = 1 \)
   - Jump discontinuity at \( x = 3 \)
   - Continuous but not differentiable at \( x = 5 \)
   - Continuous and differentiable at all other points