Computer Science 301
Spring Quarter
Lab 3 (July 12)
Due: Friday, July 15th

This lab consists of two parts (1) practice using the Microsoft Equation editor and (2) writing Racket procedures to simulate properties of relations.

Part 1. Using the Microsoft Equation editor, create an mathematical expression identical to the following:

$$\frac{\alpha}{\frac{\left(\sqrt{a^2+b^2}^3+\pi^2\right)}{\frac{\beta}{\omega^{-1}}}}=\begin{bmatrix}\alpha & \delta\\ \eta & \xi\end{bmatrix}$$

Part 2. Implement the following Racket functions:

1. **Member?**

   Input: an atom **e** and a list L**.** Interpreting **L** as a set, Member? returns **#t** if **e** is a member of L and **#f** otherwise.

2. **Union**

   Input: two lists **L** and **M**. Interpreting **L** and M sets **Union** returns **their** union.

3. **Intersection**

   Input: two lists **L** and **M**. Interpreting **L** and M sets **Union** returns **their** intersection.

4. **Difference**

   Input: two lists **L** and **M**. Interpreting **L** and M sets **Union** returns **their** difference

5. **Symmetric-Difference**

   Input: two lists **L** and **M**. Interpreting **L** and M sets **Union** returns **their** symmetric difference

To turn this assignment in:

This lab will be turned in by posting (1) a Word file with the assigned equation and (2) a Racket file with the definitions of the assigned functions.