Equivalence Relations
Group Work, CS24
Prof. Ostheimer

1. Please go to class and find people to work with and then find a bench near some beautiful flowers to work together (or stay in the classroom).

2. 20 minutes before the class ends return to the classroom and, collectively, write your answers to the questions on the board. It's fine, indeed wonderful, if there is more than one answer for each question, and if at least one of them is incorrect. Write your name on the board and along with any questions you have for me for Thursday.

3. Delegate someone to take a photo of the board and send it to me.

4. Below are two examples of equivalence relations S_1 and S_2 on $\mathbf{Z}$.

   (a) $(a, b) \in S_1$ if and only if the floor of $a - b$ is divisible by 3.

   (b) $(a, b) \in S_2$ if and only if the floor of $\frac{a}{3}$ is equal to the floor of $\frac{b}{3}$.

   Answer the following questions about S_1 and S_2:

   (a) Understand and describe to the best of your ability the equivalence class of 2 with respect to each of these relations.

   (b) How many equivalence classes are there?

   (c) How many elements does each of the equivalence classes have?

   (d) True or false: For all $a, b, c, d \in \mathbf{Z}$, if a is equivalent to b and c is equivalent to d, then $a + c$ is equivalent to $b + d$.

5. Do all the homework in Sections 9.1, 9.3 and 9.5 for Thursday. There will be a quiz on this on Tuesday, April 21. On Thursday April 16 I will take questions and start the final segment of our course: graph theory.

6. Happy Spring, Beautiful Students.