UH - Math 6302/Modern Algebra - Dr. Heier - Fall 2018
HW 2
Due Wednesday, Oct. 3, at the beginning of class.

Use regular sheets of paper, stapled together.
Don't forget to write your name on page 1.

1. (1 point) Let p be a prime number. Let G be a group of order p^2. Prove that G is abelian. Hint: You may cite a theorem from class and a problem from HW 1. Your answer will be very short then.

2. (3 points) Section 3.2, Problem 9. Note: The *cyclic permutations* in S_n are defined to be precisely the permutations in the subgroup $\langle(1\ 2\ 3\ \ldots\ n)\rangle \cong \mathbb{Z}_n$.

3. (2 points) Section 4.4, Problem 1

4. (2 points) Section 4.5, Problem 14

5. (2 points) Section 4.5, Problem 15