

## Math 344 – Day 4

### 1. Symmetries of a non-square rectangle

- a. Identify the symmetries of a non-square rectangle.
- b. Create a symbol for each like those we have been using for the equilateral triangle.
- c. Make a table showing the results of combining pairs of symmetries.
- d. Make a list of rules that can be used to fill in the table using calculations (may want to do this before part c.)

### 2. Rotations of a square

- a. Identify the *rotational* symmetries of a square.
- b. Create a symbol for each rotation like those we have been using for the equilateral triangle.
- c. Make a table showing the results of combining pairs of rotations.
- d. Make a list of rules that can be used to fill in the table using calculations (may want to do this before part c.)

### 3. List the rules that hold for all of the following:

- a. Symmetries of an equilateral triangle
- b. Rotations of a square
- c. Symmetries of a square
- d. Symmetries of a non-square rectangle.

4. A system for which these rules hold is called a *group*. What other systems can you think of for which all of these rules hold?

### 5. Definition of group:

Definition: A group is ...