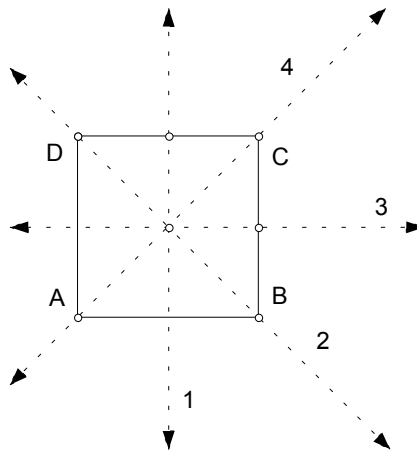


Name: _____

1. Using the notation suggested in the following diagram, answer the following questions:



a. Find all of the equivalent descriptions of the mapping R_1R_2 and the mapping R_1R_3 . (4 pts.)

b. What is the smallest group containing the reflection R_1 ? Be sure your list only contains one description of each mapping. (4 pts.)

c. What is the smallest group containing the mappings R_1 and R_2R_4 ? Be sure your list only contains one description of each mapping. (4 pts.)

d. What is the smallest group containing R_1 and R_2 ? Be sure your list only contains one description of each mapping.(8 pts.)

2. Using your MIRA, carefully plot the path a ball would follow in order to achieve a hole in one. Prove that your path is the shortest path the ball could take to the hole. (6 pts.)

