Math 338 Final Review Game

A. **Transformations of the Plane** For each map below decide which of the following properties it has:

a) preserves Euclidean distance

b) preserves Taxicab distance

c) preserves angles

1. The reflection over the line $y = 2x$.
2. The dilation of the plane with center $(0, 0)$ and scaling factor 2.
3. The reflection over the line $y = -x$.
4. The rotation of the plane around center $(0, 0)$ by $90°$.
5. The circle inversion about the unit circle with center $(0, 0)$.

B. **Triangle Congruence** Decide whether the following statements are true or false.

1. If $ABCD$ is a parallelogram, then ΔABC and ΔBCD are congruent.
2. If $ABCD$ is a parallelogram, then ΔABC and ΔCDA are congruent.
3. If $ABCD$ is a parallelogram, then ΔABC and ΔADC are congruent.
4. If $ABCD$ is a rhombus, then ΔABC and ΔADC are congruent.
5. If $ABCD$ is a rectangle, then ΔABC and ΔADC are congruent.

C. **Congruence and Similarity** For each of the following, state if it is a:

a) triangle congruence theorem
b) triangle similarity theorem
c) both
d) neither

1. SSS
2. SAS
3. AA
4. AAS
5. SSA

D. **What Am I an Axiom For?** State which set of axioms the following statement comes from.

1. There exists a unique ray that is the angle bisector of $\angle ABC$.
2. If A, B, and C are three points with B between A and C, then AC is equal to $AB + BC$.
3. Suppose that the region R is the union of two regions R_1 and R_2. Suppose also that R_1 and R_2 intersect in at most a finite numbers of segments and points. Then the area of R is the sum of the areas of R_1 and R_2¿
4. A circle can be drawn, given a center and a radius.