Alg Sept 24 - Cayley graphs, group basics   Score: _____

1. **If a group G has order 10 and a generating set S has one element, what can you say about the Cayley graph? (mark all that are true)**

   (A) It has 10 vertices.

   (B) It has 10! vertices.

   (C) It has 10 edges, and the graph can be arranged in a cycle.

   (D) It may have any even number of edges-- we can't be sure without more information.

2. **Recall that the "rank" of a group is the smallest possible size of a generating set. What is the rank of Z^2, the integer lattice in the plane?**

   (A) 1 because it is cyclic

   (B) 2 because it has a presentation <a,b | ab=ba> but it is not cyclic

   (C) 3 because it is best represented by a 3-dimensional model

   (D) infinity because the Cayley graph has infinitely many vertices

   (E) it depends on the presentation

3. **Every dihedral group is abelian.**

   (A) True

   (B) False