Problem Set 8. Due 11/13

Reminder: You must acknowledge your sources and collaborators (even if it is "none", you must write so). Failure to do so on this problem set will result in an automatic 2-point deduction.

1. Prove that a connected graph G is k-edge-connected if and only if each block of G is k-edge-connected.
2. Prove that a graph G is 2-connected if and only if for any three vertices x, y, z there is a path from x to z containing y.
3. Let G be a 3-connected graph. Let x, y, and z be three vertices in G. Prove that there is a cycle containing x, y, and z.
4. Let G be a 3-connected graph with at least 6 vertices. Prove that G contains a cycle of length at least 6.

   More problems will be posted by Tuesday 11/6. Please check back.