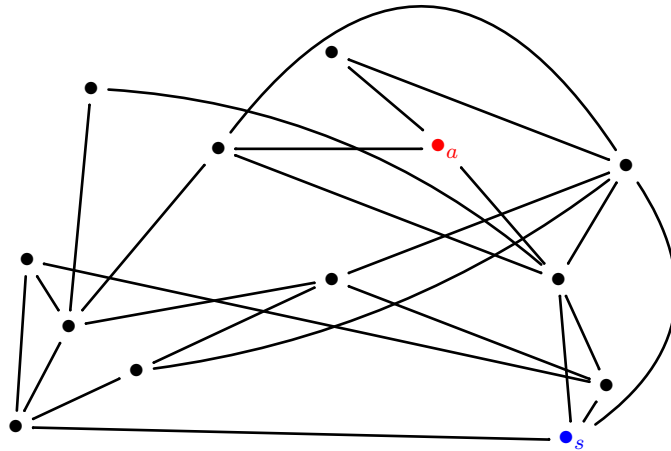


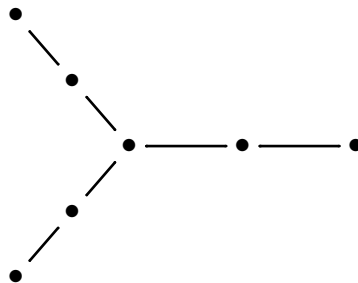
Math 318: Review Problems for Final

Problems are marked as to which day we will go over them. The Friday problems you can do to hand in Friday if you want extra credit toward your homework grade.

Problem 1. (Friday/extra Credit) In the following graph, find set of paths from a to s that share no vertices other than the endpoints and so that the set is as large as possible.



Problem 2. (Wednesday) Draw a graph that has twelve vertices and four blocks, and so that the block graph is isomorphic to this:

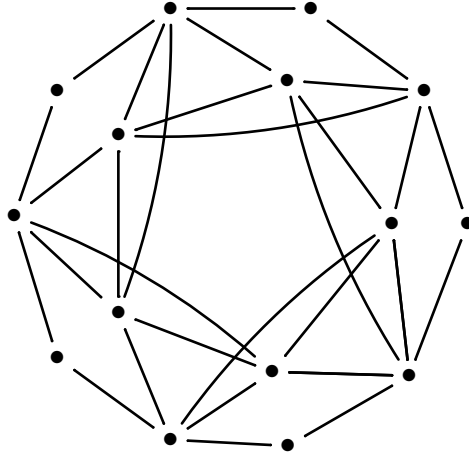


(Hint: are the leaves here represent blocks or cut vertices?)

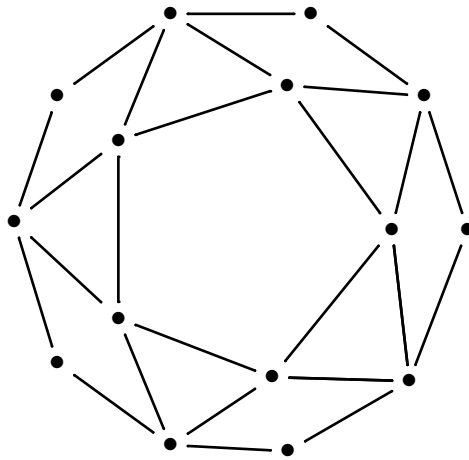
Problem 3. (Friday/extra Credit) Classify, up to isomorphism, all connected graphs with six vertices and six edges. (Hint: how many cycles will such a graph have?)

Problem 4. (Wednesday) Classify, up to isomorphism, all connected graphs with the degree sequence $(1, 1, 1, 1, 1, 1, 3, 3, 3, 3)$.

Problem 5. (Friday/extra Credit) Show that the following graph is not planar.

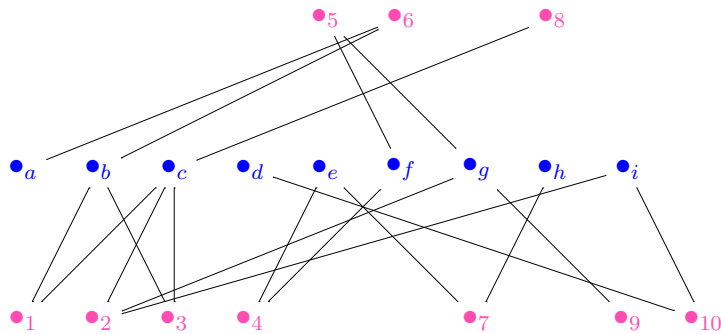


Problem 6. (Wednesday) Show that the following graph is not Hamiltonian. Also show it is not bipartite.



Problem 7. (Wednesday) Find three Hamiltonian cycles for K_7 so that no two of the cycles share a common edge.

Problem 8. (Wednesday) Find an optimal matching for this graph between the red and blue vertices:



Problem 9. Wednesday Find an isomorphism of the following graph with itself that send a to h and c to c .

