CS 141: Advanced Topics in Algorithms
Spring 2006
Homework Cris and Chris

Due: Thursday, April 6

1. **[10 Points] Delaunay Triangulations and Minimum Spanning Trees!** Delaunay Triangulations have many interesting properties. One is this: Given a set of points P in the plane and the Delaunay Triangulation of these points, two points $p_1, p_2 \in P$ are connected by an edge in the Delaunay Triangulation if and only if there exists some circle through p_1 and p_2 that contains no other points of P.

   Use this property to prove the following claim: Consider a set of points P in the plane. Let G_P be the complete graph induced by these points such that the weight on each edge is the Euclidean distance between its endpoints. Let D_P be the Delaunay Triangulation of P. Then any minimum spanning tree of G_P is a subgraph of D_P.