

Math 4550 Questions for April 21, 2009

1. Prove that K_5 is not a planar graph.
2. Let P be a polytope in \mathbb{R}^d . Prove that the set of $a \in (\mathbb{R}^d)^*$ in general position is open and dense.
3. Let $F \subseteq G$ be faces in a polytope P . Prove that $\mu_{\mathcal{F}(P)}(F, G) = (-1)^{\dim G - \dim F}$.
4. Show that ΔY and $Y\Delta$ moves preserve 3-polytopalness.
5. Prove that G is simple and k -connected if and only if G^* is simple and k -connected