Graph Theory
Assignment 6
Due 10:00 AM, Friday February 17th.

1) (a) Show that for any bramble $\mathcal{B}$ in a graph there is a path intersecting all the elements of $\mathcal{B}$.

(b) Extend this result to show there is a cycle which is a hitting set for $\mathcal{B}$.

(c) Use this to prove that if a graph has no C_l minor it has tree width at most $l-1$.

(2) Use (1) to prove that if G has no W_l-minor then it has tree width $O(l)$, where W_l, the l-wheel is obtained from C_l by adding a vertex adjacent to all of the vertices of the cycle.

(3) Show that if G contains no path of length l then its chromatic number is $O(l)$.

(4) Give a polynomial time algorithm to find the largest induced bipartite subgraph of an i-triangulated graph.