

Graphentheorie

4. Übungsblatt WS 05/06

Abgabetermin: 21.11.05

Exercise 16

Show that every k -connected graph contains every tree of order $k+1$ as a subgraph.

Exercise 17

Let $H = G + K_1$, where G is k -connected. Prove that H is $(k+1)$ -connected.

Exercise 18

Prove that a graph G of order $n \geq 2k$ is k -connected iff for every two disjoint sets V_1 and V_2 of k vertices each, there exist k disjoint paths connecting V_1 and V_2 .

Exercise 19

Show that the order of every noncomplete connected graph G is at least $\beta(G)(1 + t(G))$.

Exercise 20

Show that every 1-tough graph is 2-connected.

Exercise 21

Show that if G is a noncomplete graph of order n , then $t(G) \leq \frac{n-\beta(G)}{\beta(G)}$.