

Homework 4

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1 Proof of theorem 2

- a)
- $B(G)$ is a block forest of G .
 - l represents the number of leaves in $B(G)$.
 - d is the maximal degree of a c-vertex in G .
 - h is the number of connected components in G .
 - q is the number of isolated vertices in $B(G)$.

We would like to show, that there exists a set of edges F of cardinality $|F| = \max\{d + h - 2, \lceil \frac{l}{2} \rceil + q\}$ so that $G + F$ is 2-connected. We will not provide the full proof, but just try to find a single edge that will reduce the expression $\max\{d + h - 2, \lceil \frac{l}{2} \rceil + q\}$ preferably so that h and q will drop by 1.

- b) $\max\{d + h - 2, \lceil \frac{l}{2} \rceil + q\}$