

Cuts II.

1. Prove the following theorem: Let G be an undirected graph and let $X, Y \subseteq V(G)$ be two disjoint sets of vertices. If \mathcal{S} is the set of all important (X, Y) -cuts, then $\sum_{S \in \mathcal{S}} 4^{-|S|} \leq 1$.
2. Show that Vertex Multicut is polynomial-time solvable on trees.
3. Show that Edge Multicut is NP-hard on trees.

Hint: Vertex cover, stars.

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