Section 1.3.2

1 a)

b)

c)

d)

e)

2 If T has order n, it has $n-1$ edges. Having an even number of edges then implies that there are an odd number of vertices. If all the degrees of the vertices were odd, then the sum of an odd number of odd numbers is odd, which contradicts that $\sum_{v\in V(T)} deg(v) = 2|E(T)|$.

3 Let $v \in V(T)$ be the vertex with the maximum degree. Consider $T - \{v\}$, which is a forest of δ trees. The resulting trees are either K_1, which means that it was a leaf in T, or has order greater than 1. These trees have at least 2 leaves, with at most one created from the deletion of v. Thus T has at least δ leaves.

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