20.1.2
Some graph theory

Some basic properties of Spanning Trees

- Tree = undirected graph in which any two vertices are connected by exactly one path.
- Tree = a connected graph with no cycles.
- Subgraph H of G is **spanning** for G, if G and H have same connected components.
- A graph G is connected $\iff$ it has a spanning tree.
- Every tree has a leaf (i.e., vertex of degree one).
- Every spanning tree of a graph on n nodes has $n-1$ edges.

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Exchanging an edge in a spanning tree

Lemma 20.1.

$T = (V, E_T)$: a spanning tree of $G = (V, E)$. For every non-tree edge $e \in E \setminus E_T$ there is a unique cycle C in $T + e$. For every edge $f \in C - \{e\}$, $T - f + e$ is another spanning tree of G.

THE END

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(for now)