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2.5 Author rigorous proofs of properties of graphs and their associated algorithms.

A graph $G = (V, E)$ is *bipartite* if its vertices can be divided into two disjoint sets V_1, V_2 (i.e., $V_1 \cup V_2 = V$ and $V_1 \cap V_2 = \emptyset$) such that every edge of E connects a vertex in V_1 and a vertex in V_2.

A tree is an acyclic graph, i.e., a graph that contains no cycles. (Recall that vertices u and v are part of a cycle if there exists more than one path connecting them.)

Prove the following claim (justify in a few well argued sentences using these definitions).

Claim. *All trees are bipartite graphs.*

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