Massachusetts Institute of Technology
6.042J/18.062J: Mathematics for Computer Science
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Tutorial 8
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Problems for Tutorial 8

Problem 1. Lost In the Forest

Consider a forest with k connected components and n vertices. How many edges are in the forest?

Problem 2. Hard to Break

A *2-connected graph* is a graph in which 2 edges must be removed to disconnect it. What is the minimum number of edges that a 2-connected graph of n vertices must have?

Problem 3. Tournaments

A *Tournament Graph* is a directed graph such that if u and v are vertices then either (u, v) is an edge or (v, u) is an edge but not both. A *Directed Hamiltonian Path* is a simple path in a directed graph that contains every vertex exactly once. Prove by induction on the number of vertices that every tournament graph has a directed Hamiltonian path.