

CIS 160

Recitation Guide - Week 7

Topics Covered: Graphs, Trees, Conditional Probability

Problem 1: Let T be a tree where the maximum degree is Δ . Prove that T has at least Δ leaves.

Problem 2:

You run into a town with 100 robots. You know that 99 of these robots tell the truth half the time and lie the other half. You also know that there is exactly 1 truthful robot in town, who always tells the truth. You take a robot at random and ask a question seven times, and the robot tells the truth every time. What is the probability that this is the truthful robot?

Problem 3:

Prove that G or the complement of G is connected. Note that the complement of a graph $G = (V, E)$ is $G^c = (V, E')$ and $\forall u, v \in V, \{u, v\} \in E' \iff \{u, v\} \notin E$.