CSE 5339 - Randomness and geometry in the design of algorithms
Problem Set 1
Due lecture on March 6th

1. (Motwani Raghavan, Exercise 1.3) Consider a Monte Carlo algorithm A for a problem Π whose expected running time is at most $T(n)$ on any instance of size n and that produces a correct solution with probability $\gamma(n)$. Suppose further that given a solution to Π, we can verify its correctness in time $t(n)$. Show how to obtain a Las Vegas algorithm that always gives a correct answer to Π and runs in expected time at most $(T(n) + t(n))/\gamma(n)$.

2. Prove Corollary 4 from `http://www.cse.ohio-state.edu/~lrademac/valparaiso2011/notes.pdf`.