

CS 70 SPRING 2007 — DISCUSSION #14

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1. ADMINISTRIVIA

- (1) Course Information
 - Homework 9 is graded.

2. CONTINUOUS RANDOM VARIABLES

Exercise 1. Let X be a random variable with probability density function $f(x) = \frac{1}{(1+x)^2}$. Compute:

- (1) $\Pr(X > 3)$?
- (2) You sample from this distribution 4 times, so X_1, X_2, X_3 , and X_4 are iid with distribution $f(x)$. What's the chance that exactly two of these variables are greater than 3?
- (3) $\mathbb{E}[X]$?

3. NORMAL DISTRIBUTION

Exercise 2. The average life of a certain type of engine is 10 years, with a standard deviation of 3.5 years. The manufacturer replaces free all engines that fail while under guarantee. If he is willing to replace only 2% of the engines, how long a guarantee should he offer? Assume a normal distribution.

4. CENTRAL LIMIT THEOREM

Exercise 3. The Cal basketball team plays 100 independent games, each of which they have probability 0.8 of winning. What's the probability that they win at least 90?