HOME ASSIGNMENT 2   (18.05, SPRING 2006)

Read: *Dekking et al.* Chapters 4, 5, 7.

Solve: Problems 4.2, 4.5, 4.11, 4.14, 5.3, 5.6, 5.7, 5.11, 7.2, 7.3, 7.4, 7.7, 7.14 (10 points each) and the problems below.

1.   Find the average population in the top 10 US metro areas as of April 1, 2000. See web page link to the data. Same for the the second 10 areas. Find the following conditional probability: P(X lives in the top 10 metro areas | X lives in the top 20 metro areas), where X = random US resident.

2. Let X be a c.r.v. with a uniform distribution $U(0,1)$. Compute:
$P\big((X-0.5)^2 < 0.01\big)$, $P(1 < 3 \cdot X < 2)$, $P(X + 1/X < 2)$.

3.   Let X be a random integer chosen from a non-uniform distribution on $\{0, 1, \dots, 999\}$, such that $P(X = n) = p$ if the integer n has no digits 3, and $P(X = n) = 2p$ otherwise. Find p. Compute $P(X < 100)$, $P(X < 500)$ and $E[X]$. How would $E[X]$ change if 3 is replaced by 7?

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This Homework is due Wednesday February 28 at 4 pm. in 2-108 (UMO)
Make sure to read collaboration policy on the course web page.