Homework Set 4   **EECS 401**   **Due: Friday, Feb. 4, 2000,**
in class before lecture begins.

Reading Assignment: Read Sections 3.1-3.4.

Things to practice with on your own:
   the BIG FOUR; indpendence vs. disjoint; examples where "A AND B" means intersection vs. those where it means Cartesian product; the definitions of discrete and continous random variables; finding probabilities from cdf's, pdf's and pmf's.

1. A total of 46 percent of the eligible voters in a certain city classify themselves as Independents, whereas 30 percent classify themselves as Liberals, and 24 percent as Conservatives. In a recent local election, 35 percent of the Independents, 62 percent of the Liberals, and 58 percent of the Conservatives actually voted. An eligible voter is chosen at random.

   (a) Find the probability that this voter actually voted.

   (b) Given that this voter voted in the election, what is the probability that he or she is an Independent?

2. 2.57 b, p. 78

3. 2.62, p. 79   just for "A and B^c"

4. 2.66, (a) and (c), p. 79

5. 2.70, p. 79

6. 2.71 (hint: there are two approaches)

7. 2.76 (a) and (b), p. 80

8. 2.91 (a), p. 82

9. 3.7, p. 175

10. 3.9, p. 175;   in addition give the formula for the cdf that you find.

11. 3.12, p. 175

12. 3.13, p. 175

13. 3.20, p. 176

14. 3.22, p. 177

continued on the other side

15. Which of the functions shown below are valid cumulative distribution functions. For each that is valid, what type of random variable does it represent?

$F_1(x)$

x

-1   1

$F_2(x)$

x

-2   2

$F_3(x)$

x

-2   2

$F_4(x)$

x

-2   2