Assignment #2: Ch 2 Ex 38,44,78,92,98

38. Review Example 2.23. If you understand the two-type calculation, you will have no problem with the extension in part c). For part d), you will need P(A')=1-P(A).

44. Again, understanding what the $C_{k,n}$ (the other version of the combinatorial symbol) represents in terms of a selection will provide the interpretation.

78. (1 or 2) or (3 and 4)

92. Keep in mind that two errors can sometimes cancel each other out and produce a correct signal.

98. Note the assumption of *independence* when the test is applied to two different blood samples from any one individual. Also, there is just one tests being described – the phrase "both tests" refers to one test performed twice for a particular individual. This problem is an application of the basic rules of probability calculus:

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$
$P(A|B)= P(A \cap B)/P(B)$
and the useful derived relationship
$P(A) = P(A\cap B) + P(A\cap B')$
Of course, these general rules have special cases when A and B are independent or mutually exclusive.