HW #4

Please, write clearly and justify all your steps, to get proper credit for your work.

(1)[3 Pts] The probability of producing a high-quality color print is 0.10. How many prints do you have to produce so that the probability of producing at least one quality print is larger than 0.90?

(2)[4 Pts] If a student answers questions on a true-false test randomly (i.e., assume that $p = 0.5$) and independently, determine the probability that:

(a) the first correct answer is in response to question 4;

(b) at most four questions (that is, four or fewer) must be answered to get the first correct answer.

(3)[3 Pts] Suppose that there are 100 defective items in a lot of 2000 items. If a sample of size 10 is taken at random and without replacement, what is the probability that there are two or fewer defectives in the sample?

(4)[6 Pts] A stockbroker has a 60 percent probability of success in picking stocks that appreciate. Assume independence. You are investing in 20 securities that he suggested. Calculate the probability that

(a) 9, 10 or 11 stocks will appreciate;

(b) that fewer than 14 stocks will appreciate;

(c) calculate the mean and standard deviation of the number of the stocks that will appreciate.