MATH 108
Worksheet 5; Binomial Random Variables

Bob didn't study for his multiple choice statistics test. Every problem has 5 options and he is guessing at random. There are 23 problems on the test. Assume he does this for every test. Define "success" to be "he gets it right" and "failure" to be "he gets it wrong".

1. What is the probability of success in this experiment?

2. What is the mean number of problems he will get right?

3. What is the standard deviation of the number of problems he will get right?

4. What is the probability that he gets exactly 6 questions right? (Do this calculation using the formula.)

5. What is the probability that he gets fewer than 7 right?

6. What is the probability that he gets from 7 to 12 questions right?

7. One day, Bob's statistics instructor gives a ten question pop quiz. Bob, of course, hasn't studied, so he has to guess again. Each question on the quiz has FOUR options (not five). Give a probability distribution for the number of questions Bob answers correctly. (If your calculator gives you an answer in scientific notation, then write the answer using scientific notation and 3 significant digits.)