**AFM – Probability Unit**

**Binomial Distributions HW**

*1. You are taking a 12 question multiple choice quiz where each question has 4 answer choices and you are randomly guessing the answers. Show your calculator set up for each and round to 4 decimal places.*

a. What is the probability that you get exactly 5 of them correct?

b. What is the probability that you get AT MOST 8 of them correct?

c. What is the probability that you get 3 OR MORE of them correct?

*2. A recent study indicated that 40% of all Americans have some form of the flu. To contract the flu, you must come in contact with at least seventy people who have it. If you came in contact with 197 people today, then what is the chance you contracted the flu?*

*3. Shane plays quarterback for the Spartans football team. In the past three years, he has completed 75% of his passes. If he throws 14 passes in this year’s game*

a. What is the probability that he will complete at least 11 passes?

b. What is the probability that he completes exactly 6 passes?

c. What is the probability that he completes 4 or less passes?

d. What is the probability that he completes every single pass?

e. What is the probability that he completes more than half of the passes?

*4. Mr. Senioritis shows up to the last day of AFM to take the multiple choice final. He has slept every single day in class and doesn’t have any idea what any of the answers are, so he guesses on all 15 questions. If there are 5 answer choices for each question,*

a. What is the probability that he will get exactly 6 questions right?

b. What is the probability that he gets at least 6 correct?

c. What is the probability that he gets less than 6 correct?

d. What is the probability that he makes a 0 on the final?

e. What is the probability that he makes a 100 on the final?

*7. A coin is flipped 25 times. What is the probability that at least half of them come up tails?*

*8. You are given an 8 question multiple choice test where each problem has 4 answer choices. You don’t know the answers so you randomly guess on all of them. Find the probability that you:*

a. Get exactly 3 answers correct

b. Get at least 3 questions correct

c. Get at most 3 questions correct

d. Get no more than 6 questions correct

e. Get either 4 or 5 questions correct

*9. A heart surgeon has developed a new procedure that she believes can correct a life-threatening medical situation. If the success rate for this procedure is 86.2%, and the procedure is tried on 22 patients, what is the probability that less than 19 of them will show improvement?*

*10. A (blindfolded) marksman finds that on the average he hits the target 4 times out of 5. If he fires 8 shots, what is the probability of*

a. getting more than 2 hits?

b. getting at least 3 misses?