Name Key

**HW - Binomial Experiments**

For problems 1-3, 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.

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

binompdf(12, .25, 5) .1032

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

0-8 | 9-12

binomcdf(12, .25, 8) .9996

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

0-2 | 3-12

1 - binomcdf(12, .25, 2) .6093

4. 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?

0-69 | 70-197

n=197
p=.4
k=70

1 - binomcdf(197, .4, 69) .9126

5. 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, what is the probability that he will complete **at least 11 passes**?

0-10 | 11-14

1 - binomcdf(14, .75, 10) .52134

What is the probability that he completes exactly 6 passes?

binompdf(14, .75, 6) .0082

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

0-4 | 5-14

binomcdf(14, .75, 4) $3.42 \times 10^{-4}$ or .000342

What is the probability that he completes every single pass?

binompdf(14, .75, 14) .0178

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

0-7 | 8-14

1 - binomcdf(14, .75, 7) .9617

6. 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. What is the probability that he will get **exactly 6** questions right? 5 answer choices per question

binompdf(15, .2, 6)

.04299

What is the probability that he gets AT LEAST 6 correct?

0-5 | 6-15

1 - binomcdf(15, .2, 5)

.06105

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

0-5 | 6-15

binomcdf(15, .2, 5)

.9389

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

binompdf(15, .2, 0)

.0352

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

binompdf(15, .2, 15)

$3.28 \times 10^{-11}$

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

at least 12.5 → bump to 13

0-12 | 13-25

1 - binomcdf(25, .5, 12)

.5

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:

0-2 | 3-8

Get exactly 3 answers correct binompdf(8, .25, 3)

.2076

Get at least 3 questions correct 1 - binomcdf(8, .25, 2)

.3215

Get at most 3 questions correct binomcdf(8, .25, 3)

.8862

Get no more than 6 questions correct

0-6 | 7-8

binomcdf(8, .25, 6)

.9996

* Get either 4 or 5 questions correct binompdf(8, .25, 4) + binompdf(8, .25, 5)

.1096