

**Lab Assignment #11**

This lab is due at 12:30 PM on Wednesday, 10/9 and is worth 10 points. This part may be done individually, or in a group of 2, 3, or 4 people.

1) Think back to example 1 from the lecture, specifically the tree diagram for flipping coins. If a coin is flipped 1 time, there are 2 possible outcomes. If a coin is flipped twice, there are 4 possible outcomes. If a coin is flipped 3 times, there are 8 possible outcomes.

a) Do you see the pattern to the numbers 2, 4, 8?

b) If a coin is flipped 4 times, how many possible outcomes are there?

c) Using a tree diagram or not, make a list of all the possible outcomes that give exactly 2 heads out of 4.

d) What is the probability of flipping a coin 4 times, and getting exactly 2 heads?

e) If a coin is flipped 5 times, how many possible outcomes are there?

f) Using a tree diagram or not, make a list of all the possible outcomes that give exactly 3 heads out of 5.

g) What is the probability of flipping a coin 5 times, and getting exactly 3 heads?

2) Two 10-sided dice are rolled. Each die has sides numbered 1 to 10.

a) What is the smallest sum you can get?

b) What is the largest sum you can get?

c) Find the probability of each possible sum, from the smallest (part a) to the largest (part b).

d) Do all of your probabilities add to 1?

3) Three 6-sided dice are rolled. There are 216 outcomes, because  $6^3 = 216$ . Find the probability that the sum is ...

- a) 3
- b) 5
- c) 17
- d) 9