SchoolNova, Math 5b
Homework 21
Basic Probability Theory
April 28, 2019

Please provide sufficient details about how you solved the problem. More difficult problems are marked with a $*$. If unable to solve a problem, please present your thoughts and any partial solution.

1. (a) A fair dice is rolled. What is the probability of an even outcome?
   (b) Two fair dice are rolled. What is the probability of an even outcome on both dice?
   (c) Roll two dice 50 times. In the table below, count the total number of rolls and the number of rolls where both dice show an even outcome, for example 2 and 4. From the tallies, calculate the probability that both dice show an even outcome. How does it compare with the result in (a)?

Total Rolls	**Rolls with even outcome**

2. (a) Roll two dice. What is the probability that both dice show the same face?
   (b) Roll two dice 50 times. In the table below, count the total number of rolls and the number of rolls where both dice show the same face, for example 2 and 2. From the tallies, calculate the probability that both dice show the same face. How does it compare with the result in (a)?

Total Rolls	**Rolls with same face**

3. A fair dice is rolled twice. What is the probability that the sum of the two rolls is 7?

4. A fair dice is rolled twice. What is the probability that the number on the first roll is less than the number on the second roll?

5. Toss a coin 50 times. In the table below, count the total number of tosses and the number of heads. From the tallies, calculate the probability of heads. Is it a fair coin?

Total Tosses	**Total Heads**