1. Suppose you flip a fair coin \( n \) times.
   (a) What is the probability of flipping more Heads than Tails?
   (b) What is the probability of flipping exactly the same number of Heads and Tails?
   (c) What is the probability of flipping exactly three Heads in a row and all other flips are Tails?

2. Suppose you flip a fair coin \( 10 \) times. A magician claims to be able to know what the coin will do. He guesses the outcome in advance of your flips and gets \( 7 \) out of \( 10 \) correct. What is the probability that he would have guessed at least \( 7 \) correctly if he did not use any magic, i.e. if he had guessed at each flip equally likely at random?

3. Which of the following has a greater probability?
   (A) Rolling a sum of \( 8 \) with two six sided fair dice?
   (B) Rolling a sum of \( 8 \) with three six sided fair dice?

4. Suppose we have an unfair die. The die has been altered so that the number 5 is twice as likely to appear as any of the other five outcomes. What are the probabilities of each possible outcome?