Exercise 1. Given a uniformly distributed random variable X with range $R_X = \{1, 2, 3, 4, 5, 6\}$, what is the probability to get an outcome that is even or greater than 3?

Exercise 2. Consider a uniformly distributed random variables X with range $R_X = \{1, 2, 3, 4, 5, 6\}$ and Y with range $R_Y = \{\text{heads}, \text{tails}\}$. Calculate $\Pr[X = 6, Y = \text{heads}]$.

Exercise 3. Consider a uniformly distributed random variables X with range $R_X = \{1, 2, 3, 4, 5, 6\}$ and Y with range $R_Y = \{\text{heads}, \text{tails}\}$. Calculate $\Pr[X = 6 \texttt{ or } Y = \text{heads}]$.

Exercise 4. Consider a uniformly distributed random variable X with range $R_X = \{1, 2, 3, 4, 5, 6\}$. What is $\Pr[X = 5 \texttt{ or } X = 6]$?

Exercise 5. Consider a class of 30 students, 17 students are foreigners, and the rest 13 are local students. The test results show that 4 foreigners and 5 local students made an "A". What is the probability that a uniformly selected student will be a local student or one of those who made an "A"?

Exercise 6. Table 1 shows statistical data collected from an employees of an enterprise. Does the salary rate depend on the color of the employee's car?

Table 1: Salary rate vs car color

	red car	other color
low salary	28	252
high salary	7	63

Exercise 7. Assume you are standing in a line to a football match and see someone with long hair. We have no idea is it a man or a woman, but since this is a line to a football match, we expect to meet men more likely then women. We believe that, on average, out of 100 people, there are 98 men and 2 women. 94 men have short hair, 4 men have long hair. Among women, we believe that the distribution is even, meaning that 1 woman has short hair, and 1 woman has long hair. We observe a long hair in front of us and ask is this person more likely a man or a woman?