ORCA 2500, HW 4.

1. Suppose you flip n fair coins What is the probability of getting exactly i heads, for each i. What is the probability of getting at least i heads for each i?

2. What is the probability of an odd sum when you roll three dice.

3. Suppose that each of 9 people are dealt 4 cards. What is the probability that one of the people has 2 or more kings. (I recently lost a poker hand where the only way I could have lost was if someone had 2 or more kings. I had been pretty sure I was going to win).

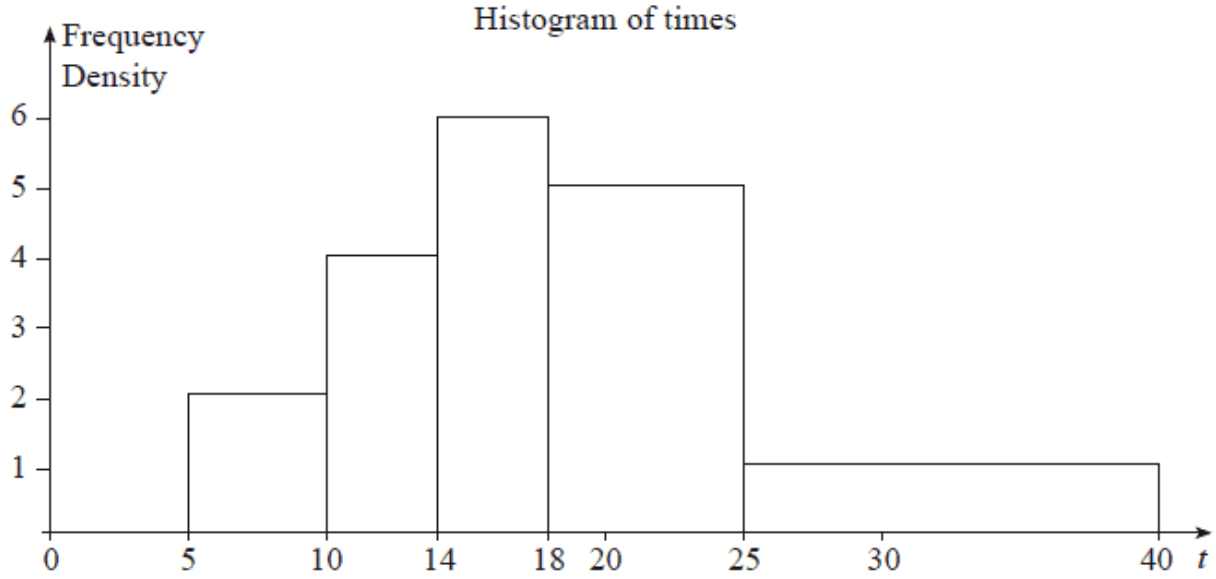
4. Which event is more likely:

   (a) drawing an ace and a king, when you draw 2 cards from a 52 card deck.

   (b) drawing an ace and a king, when you draw 2 cards from a 13 card deck consisting of only hearts.

   Please explain with calculations.

5. The histogram below shows the time t , measured in minutes, it took students to finish their homework.



   (a) Construct a frequency table for t.

   (b) Estimate the mean time taken to complete the homework.

   (c) Estimate the percentage of students who took less than 20 minutes to finish their homework.

6. XYZ is an insurance company that is asking for your help to visualize the age distribution of its clients' database and draw conclusions. For confedentiality reasons, you given the data as a CSV file that has only two columns: The first gives the client ID (to keep clients anonymous) and the second is the client's age in years (the variable of interest). Load the data from **Ages.csv** into a Table, explore it then explain how you would be able to help XYZ. You may use the following questions as guidelines, but are welcome to be creative:

   (a) What plots can you generate from the data?

   (b) Which plot is most suitable for visualizing the distribution of data?

   (c) How would you divide or group your data to make best sense of it?

   (d) How would you label the axes on your plot?

   (e) What insights can be drawn from the plot?

Your answer should start with a brief paragraph explaining how you want to approach the company's question and what options you have. After you decide which is the best way to visualize the data, proceed with writing the code and providing at least one plot which you think fits the goal of XYZ. Finally, give at least two useful insights you can conclude from looking at your plot.

7. The file **Flowers.csv** contains information about the color of 100 flowers. Use the data to plot a histogram for the colors. Label your axes appropriately.