

Question1

1. For each suits match, we should compare the card, which is picked with the previous card that gave to the suit. Therefore, except the initial card, in each turn of play, P could be from 0 to 12. We have N=26 and M=2 so that P can change from 0 to 24. Therefore, **Mean=12**.

2. **Standard_Deviation=7.36** .

3. Due to the previous part, **Mean= 24**.

4. **Standard_Deviation=14.28** . In IPython file of this question, the user could enter the input.

5. Condition Probability evaluates with the following equation:

Since there is no additional information about cards, any number of “p” have an equal chance; here: 1/25

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{P(p > 12 \cap p > 6)}{P(p > 6)} = \frac{\frac{12}{25}}{\frac{18}{25}} = \mathbf{0.67}$$

6. Similar to part number 5:

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{P(p > 12 \cap p > 6)}{P(p > 6)} = \frac{\frac{36}{49}}{\frac{42}{49}} = \mathbf{0.857}$$

- Use Jupyter Notebook or Google Colab to run the script.