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DSC 500 Introduction to Data Science

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Probability

***Rolling a die and having a number greater than 5.***

The only number greater than 5 on a die is the number 6. This means that only 1 out of 6 numbers would be greater than 5. To calculate this probability, we would take the number of favorable outcomes (1) and divide it by the total number of outcomes (6). The probability of rolling a die and having a number greater than 5 is ***1/6*** or ***0.167.***

***Rolling a die and return a 6.***

Similarly, to calculate this probability, we would take the number of favorable outcomes (1) since there is only one 6 on a die and divide it by the total number of outcomes (6). The probability of rolling a die and returning a 6 is ***1/6*** or ***0.167.***

***Selecting a card from a standard pack of cards that is red.***

In order to calculate the probability of selecting a card from a standard pack of cards that is red we must first know that there are 52 cards in a standard deck as well as that half of them (26) are red and (26) are black. To calculate the probability of drawing a red card we would take the number of favorable outcomes which in this case is (26) and divide it by the total number of outcomes which is (52). Thus, the probability of selecting a card from a standard pack of cards that is red is 26/52 which reduces to ***½*** or ***0.5***.

***Selecting a card from a standard pack of cards that is an ace.***

As with the previous case, in order to calculate the probability of selecting a card from a standard pack of cards that is an ace we must first know that there are 4 aces in a standard deck. To calculate the probability of drawing an ace we would take the number of favorable outcomes which in this case is (4) and divide it by the total number of outcomes which is (52). The probability of selecting a card from a standard pack of cards that is an ace is 4/52 which reduces to ***1/13*** or ***0.077***.

***Flipping a coin and getting heads.***

To calculate this probability, we would take the number of favorable outcomes (1) since there is only one side with heads on it and divide it by the total number of outcomes (2) since there are only two sides to a coin. The probability of flipping a coin and getting heads is ***½*** or ***0.5***.