Probability is the quantified measure of the likelihood that an event will occur. The probability of an event occurring is always between 0 and 1.

\[
\text{Probability of Event } A = \frac{\# \text{ of desired outcomes (A)}}{\# \text{ of possible outcomes (S)}} \rightarrow \text{Sample}
\]

\[
P(A) = \frac{n(A)}{n(S)}
\]

Ex. 1. Probability of getting heads when flipping a coin.

\[
P(\text{Heads}) = \frac{1}{2} = 0.5 = 50\%
\]

Ex. 2. Probability of rolling a 6 on a die.

\[
P(6) = \frac{1}{6} = 0.17 = 17\%
\]

Ex. 3. Probability of rolling a 2.

\[
P(2) = \frac{1}{6} = 0.17 = 17\%
\]
Ex. 4. Probability of Rolling a 6 or 2

\[ P(6,2) = \frac{2}{6} = \frac{1}{3} = 0.33 = 33\% \]

Ex. 5. When Rolling 2 Dice, what is the probability of rolling a sum of 7?

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\[ P(7) = \frac{6}{36} = \frac{1}{6} = 0.17 = 17\% \]

- What is the probability of rolling a sum of 5?

\[ P(5) = \frac{4}{36} = \frac{1}{9} = 0.11 = 11\% \]

- What is the probability of not rolling a sum of 5?

\[ P(5') = 1 - P(5) = 1 - 0.11 = 0.89 = 89\% \]