Multiplication Rule

The change that two things will both happen equals the chance that the first will happen, multiplied by the chance that the second will happen given the first has happened.
Multiplication Rule

\[ P(A \text{ and } B) = P(A) \times P(B \mid A) \]

If A and B are independent, then

\[ P(A \text{ and } B) = P(A) \times P(B) \]
Addition Rule

To find the chance that at least one of two things will happen, check to see if they are mutually exclusive. If they are, add the chances.
Addition Rule

If A and B can’t happen at the same time, then

\[ P(A \text{ or } B) = P(A) + P(B) \]
Figure 1. Throwing a pair of dice. There are 36 ways for the dice to fall, shown in the body of the diagram; all are equally likely.