This thesis discusses symmetric random walk, its definition and basic properties. The outset is focused on the probabilistic model and subsequently on basic properties, such as the final position at time $n$, its mean value and variance. Furthermore, we will see what the scaling must be for the walk to converge to zero, precisely what is the consequence of the strong law of large numbers. In the second chapter we will examine the distribution of the maximum of the symmetric random walk. In chapter 3 we will define stopping time and Markov property of random walks. Then we proof many auxiliary lemmas using basic knowledge of combinatorics. The final part is devoted to the proof of the arcsine distribution, which shows great persistence of the symmetric random walk.