In this bachelor thesis we provide information about algorithms for GPS positioning and about the accuracy of the estimated position. We describe two algorithms that lead to a position of a receiver. They both measure pseudoranges to the satellites but in two different ways. Pseudorange is an observed value, which we get from the received signal, that include distance to the satellite and errors like atmospheric delay and clock offset. The first algorithm uses pseudoranges based on the travel time of the broadcasted satellite signal and leads to a meter position accuracy. The second algorithm uses phase observations of pseudoranges and results in much higher accuracy. Using dual frequency receivers and differential GPS we get to a mm accuracy. Then we describe a Kalman filter that is used for estimating position of a moving receiver and improving the estimated position of a static receiver.