In the beginning of this thesis we introduce the basic properties of the fluid mechanics, mainly for stationary incompressible flow. In the next section we show the weak formulation of derived (Navier-Stokes) equations and some of the boundary conditions. Finally, the biggest part of this thesis is occupied by numerical experiments with simple planar flows. We seek for suitable inflow and outflow boundary conditions on an artificial boundary for the problem of outflow from a long channel or inflow to that channel.