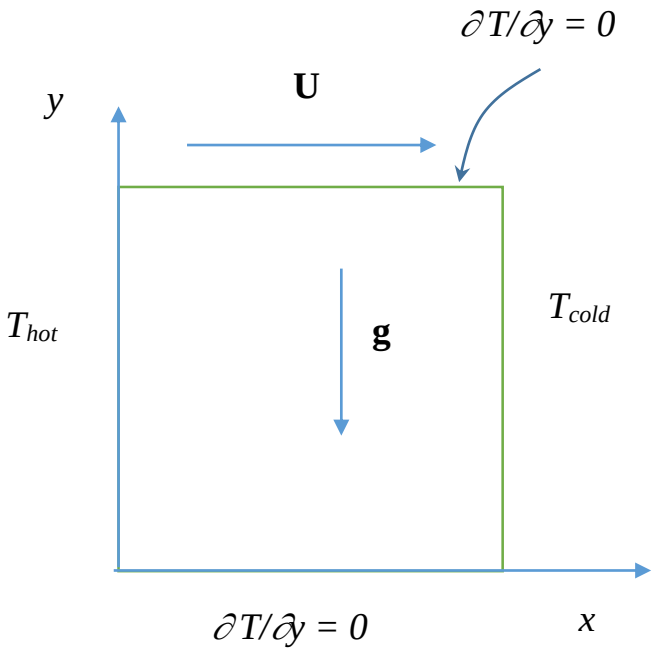
Final test

7.01.2019

Group A

Consider a 2D square cavity filled by a viscous Newtonian fluid. The top wall of the cavity is moving with a constant velocity U, while the other walls are fixed (they have a zero velocity). The left and the right walls are maintained to constant temperatures T_{hot} and T_{cold}, respectively. The top and the bottom wall are insulated (adiabatic). Obtain the dimensionless mathematical model and solve the problem numerically.



Group B

Consider a 2D square cavity filled by a viscous Newtonian fluid. The left and the right walls are maintained to constant temperatures T_{hot} and T_{cold}, respectively. The top and the bottom wall are insulated (adiabatic). The internal heat generation, q’’’, effect is present inside the cavity. Obtain the dimensionless mathematical model and solve the problem numerically.