Name_____ Student number_____

Assignment 5

A thin triangular slab is loaded by a point force at node 3. Nodes 1 and 2 are fixed and node 3 moves only in the vertical direction. Derive the equilibrium equation of the structure according to the large displacement theory in terms of the dimensionless displacement component $\mathrm{a} = u_{Y3} / L$. Approximation is linear and material parameters C and ν are constants. Assume plane-stress conditions. When $F = 0$, side length and thickness of the slab are L and t, respectively. Also find the solution to a small displacement problem by simplifying the equilibrium equations with the assumption $|\mathrm{a}| \ll 1$.