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 . Approximation is linear and material parameters *C* and  are constants. Assume plane-stress conditions. When , side length and thickness of the slab are *L* and , respectively. Also find the solution to a small displacement problem by simplifying the equilibrium equations with the assumption .

*F*

1

*X*

*Y*

1

2

3

*L*

*L*

*x*

*y*

2