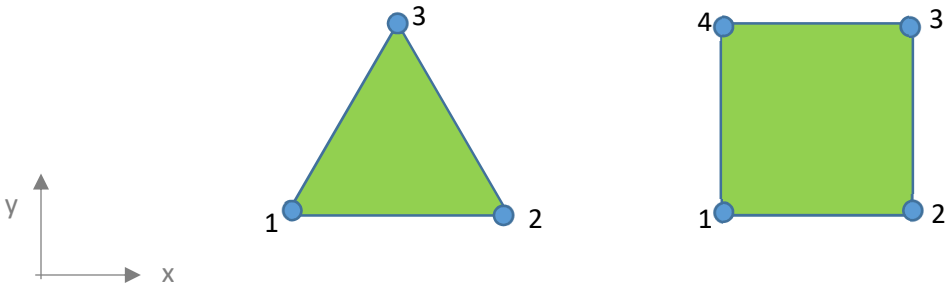
Politecnico di Milano, Master of Science in Civil Engineering for Risk Mitigation
Course Computational Mechanics - A.A. 2021/2022 - Prof. Gabriella Bolzon

Exercise 1

STUDENT IDENTIFICATION NUMBER: _ _ _ _ _ _
a b c d e f



Consider the 2 regular elements sketched above, having all side length equal to ℓ, out of plane thickness h, subjected to the volume force distribution (x horizontal direction, y vertical direction):

$$\mathrm{F_x} = -\mathrm{F_y} = m \cdot \frac{\mathrm{x} - \mathrm{x_1}}{\ell} - n \cdot \frac{\mathrm{y} - \mathrm{y_1}}{\ell}$$

with $m = 7 + \frac{3}{2} \cdot e$ and $n = 9 + \frac{3}{2} \cdot f$

where *e* and *f* coincide with the corresponding digits of your student id number.

- Compute the nodal forces equivalent to the assigned volume load distribution.
- Graphically represent the equivalent nodal forces.

Solve the exercise and deliver <u>only</u> next page 2 fully compiled.

The delivery mode shall be published with the delivery deadlines after the publication of the official examination dates.

Exercise 1 - SOLUTION

SURNAME: NAME:
STUDENT IDENTIFICATION NUMBER: _ _ _ _ _ _ PERSON CODE:
a b c d e f

EXPRESSIONS OF THE VOLUME FORCES

$m =$ $n =$

$\mathrm{F_x} =$ $\mathrm{F_y} =$

VALUES OF EQUIVALENT NODAL FORCES

triangle square

SKETCH OF EQUIVALENT NODAL FORCES

triangle square