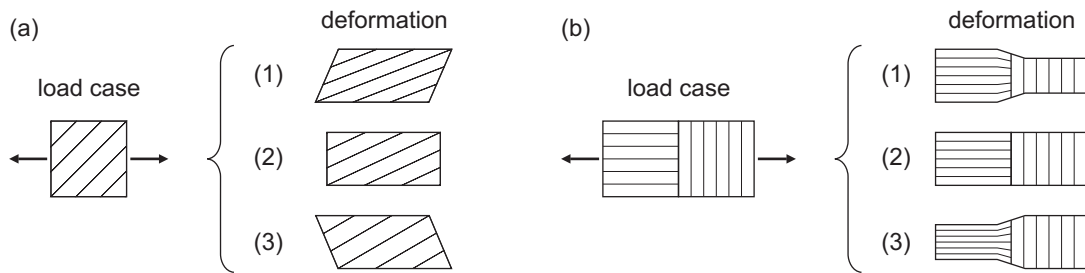


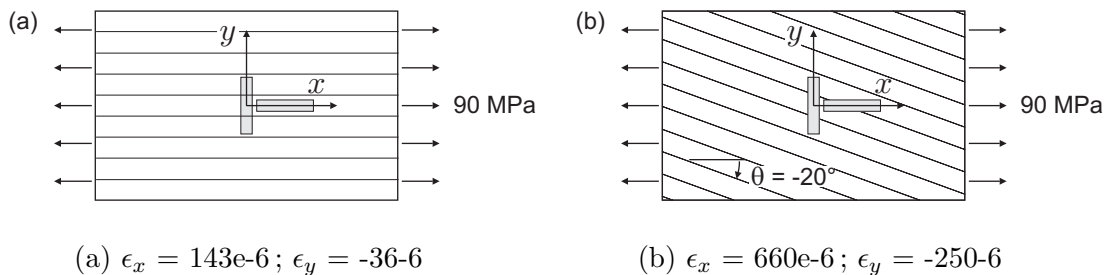
MECA-H-406 Composite structures - Exercises 3

1. Consider a unidirectional composite. For the configurations below, identify the resulting deformation. Justify.

- (a) Ply $[+45^\circ]$ subjected to a uniaxial traction. What is the sign of γ_{xy} ?
- (b) In-plane assembly of two identical plies, one at $[0^\circ]$, the other at $[90^\circ]$, subjected to uniaxial traction.



2. Consider two samples of the same laminate subjected to traction in the x direction. For each sample, the deformations are measured by two strain gauges along x and y . Compute the elastic properties of the composite E_L , E_T , ν_{LT} , ν_{TL} and G_{LT} .



3. For the laminates below, made of plies of the same composite material, compute the apparent Young moduli E_x and E_y ; the thickness of the plies is 0.18mm.

