The strain components ε_x, ε_y, and γ_{xy} are given for a point in a body subjected to plane strain.

Determine the strain components ε_n, ε_t, and γ_{nt} at the point if the nt-axes are rotated with respect to the xy-axes by the amount and in the direction indicated by the angle theta shown below. *Show all steps and include your final answer in the box at the bottom of the page.*

$\varepsilon_x = +900\ \mu$

$\varepsilon_y = +650\ \mu$

$\gamma_{xy} = -300\ \mu$

$\theta = 32^{\circ}$ clockwise

$$\varepsilon_n = \frac{900+650}{2} + \frac{900-652}{2}\cos(-64^\circ) + \frac{(-300)}{2}\sin(-64^\circ) = 964.62\mu$$

$$\varepsilon_t = \quad " \quad - \quad " \quad - \quad " \quad = 585.38\mu$$

$$\frac{\gamma_{nt}}{2} = \frac{-(900-650)}{2}\sin(-64^\circ) + \frac{(-300)}{2}\cos(-64^\circ) = 46.594\mu$$

$$\gamma_{nt} = 93.19\ \mu$$

$\varepsilon_n =$

$\varepsilon_t =$

$\gamma_{nt} =$