

$$= -180 - 55.6 - 177.2 = -\underline{413 \text{ microstrain}}$$

and the shear strain  $\gamma_{50}$  is given by:

$$\frac{1}{2}\gamma_{50} = -\frac{1}{2}(\epsilon_x - \epsilon_y) \sin 2\theta + \frac{1}{2}\gamma_{xy} \cos 2\theta$$

$$= -\frac{1}{2}(-500 - 140) \sin 100^\circ + \frac{1}{2} \cdot 360 \cos 100^\circ$$

$$= 315 - 31.3 = 284 \mu\epsilon$$

$$\therefore \gamma_{50} = 2 \times 284$$

$$= \underline{568 \mu\epsilon}$$

Note: the shear strain is a change in the right angle  $aOb$ .

