

2nd transect

Shear \rightarrow failure + fibres

$$\frac{\tau_{12}^*}{\sigma_1 \cos \theta} = \frac{\sigma_2^*}{\sin^2 \theta}$$

$$\Rightarrow \tan \theta = \frac{\sigma_2^*}{\tau_{12}^*} = \frac{40}{70} = 0.5714$$

$$\theta = 29.7^\circ$$

$\theta \rightarrow 2.48^\circ \rightarrow$ failure along fibres

$2.48^\circ \rightarrow 29.7^\circ \rightarrow$ shear failure

$29.7^\circ \rightarrow 90^\circ \rightarrow$ tensile \perp fibres