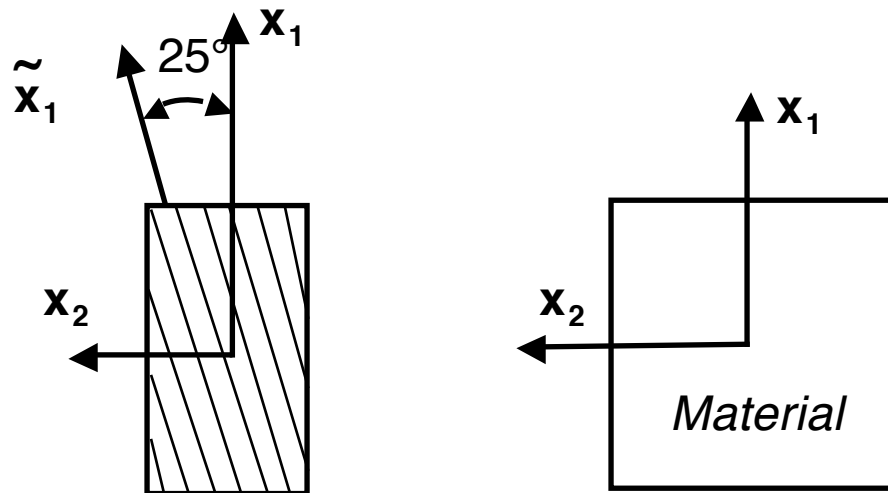


M10.1 (10 points) A structure is made of a uni-directional composite material that has all its fibers oriented at an angle of 25° relative to the loading axes. The structural loading produces the following state of plane stress in the loading axis system:

$$\begin{aligned}\sigma_{11} &= 15 \text{ ksi} \\ \sigma_{22} &= -10 \text{ ksi} \\ \sigma_{12} &= -5 \text{ ksi}\end{aligned}$$

This situation is illustrated in the accompanying figure.



Find the stress state along the "composite fiber axes". These axes are defined by aligning the 1-direction along the fiber direction.