1. The grains of wood in the board make an angle of 20° with the horizontal as shown. Determine the normal and shear stress that act parallel and perpendicular to the grains if the board is subjected to an axial load of 250 N. Show your results on a properly oriented stress element.

![Diagram of a board with an axial load of 250 N and an angle of 20°.]

2. The bell crank is pinned at A and supported by a short link BC. If it is subjected to a force of 80 N, determine the principal stresses at point E. The crank is constructed from an aluminum plate having a thickness of 20 mm. Show your results on a properly oriented stress element.

![Diagram of a bell crank with a force of 80 N and dimensions labeled.]

3. The solid bar shown has a diameter of 1.25 in. For the loading shown, determine the maximum shear stress and the principal stresses at point A. Show your results on properly oriented stress elements.

![Diagram of a solid bar with applied forces and dimensions labeled.]