#1 The members of a truss are connected to the gusset plate. If the forces are concurrent at point $O$, determine the magnitudes of $F$ and $T$ for equilibrium. Take $\theta = 30^\circ$.

#2 The gusset plate is subjected to the forces of four members. Determine the force in member $B$ and its proper orientation for equilibrium. The forces are concurrent at point $O$. Take $F = 12 \text{ kN}$.
#3 Determine the tension in the cables in order to support the 100-kg crate in the equilibrium position shown.

#4 The ends of the three cables are attached to a ring at A and to the edge of the uniform plate. Determine the largest mass the plate can have if each cable can support a maximum tension of 15 kN.