ME 323: Mechanics of Materials ***Homework H32/33***

Summer 2025 ***Assigned/due: July 29/August 3 (Sunday)***

Consider the truss shown below. All members are made of the same material having a Young's modulus of E and have circular cross-sections having a radius of R. The angles defined in the figure are known to be $\theta = 36.87°$ and $\phi = 45°$.

a) Determine the load carried by each member in the truss in terms of the load P. Identify which members are in compression.

b) Determine the maximum load P such that none of the truss members fail from buckling using the Euler theory for buckling. Consider all members to be pinned-pinned in terms of their boundary conditions. Your answer should be in terms of, at most: L, R and E.