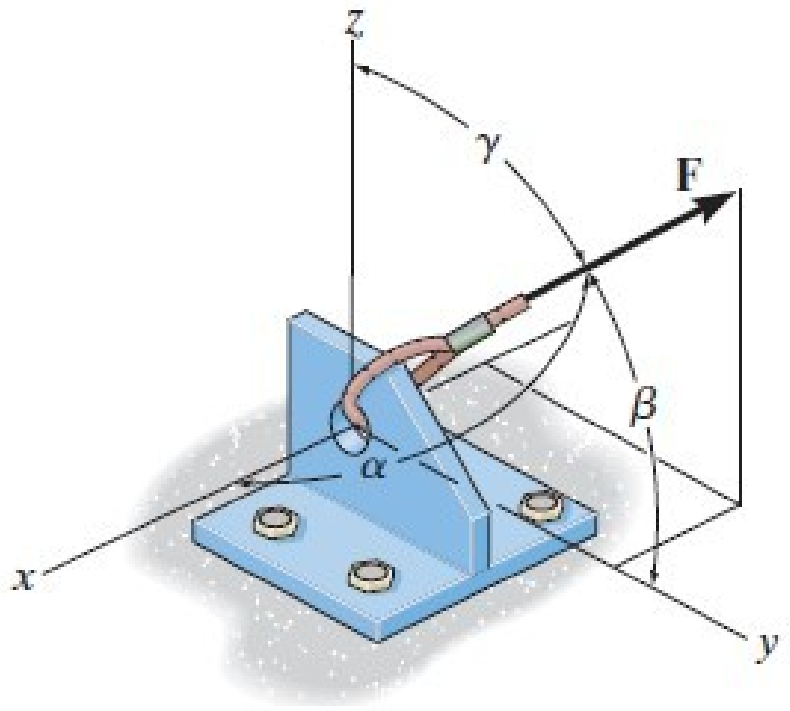
ME 201 STATICS

PROBLEM HOUR II

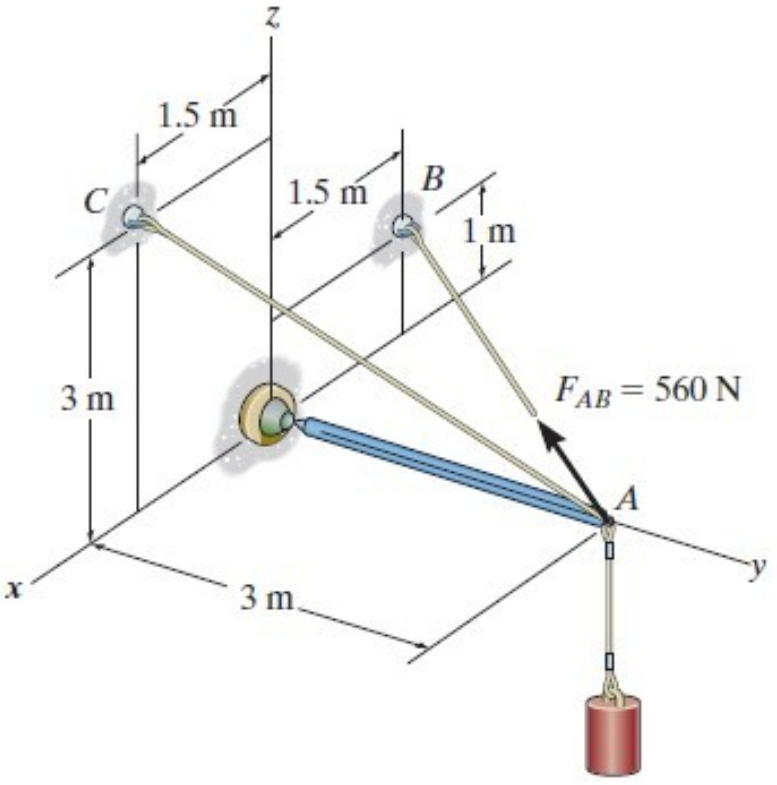
3D FORCE SYSTEMS

Q1) **2–63.** The force **F** acts on the bracket within the octant shown. If $F = 400\ \text{N}$, $\beta = 60°$, and $\gamma = 45°$, determine the x, y, z components of **F**.

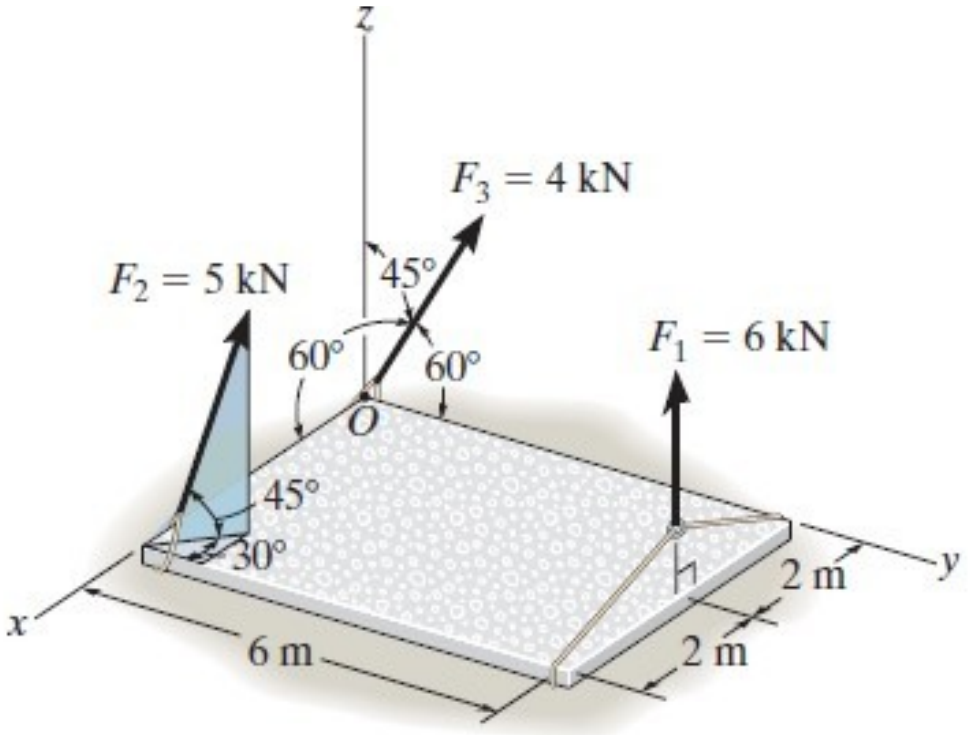


Q2)

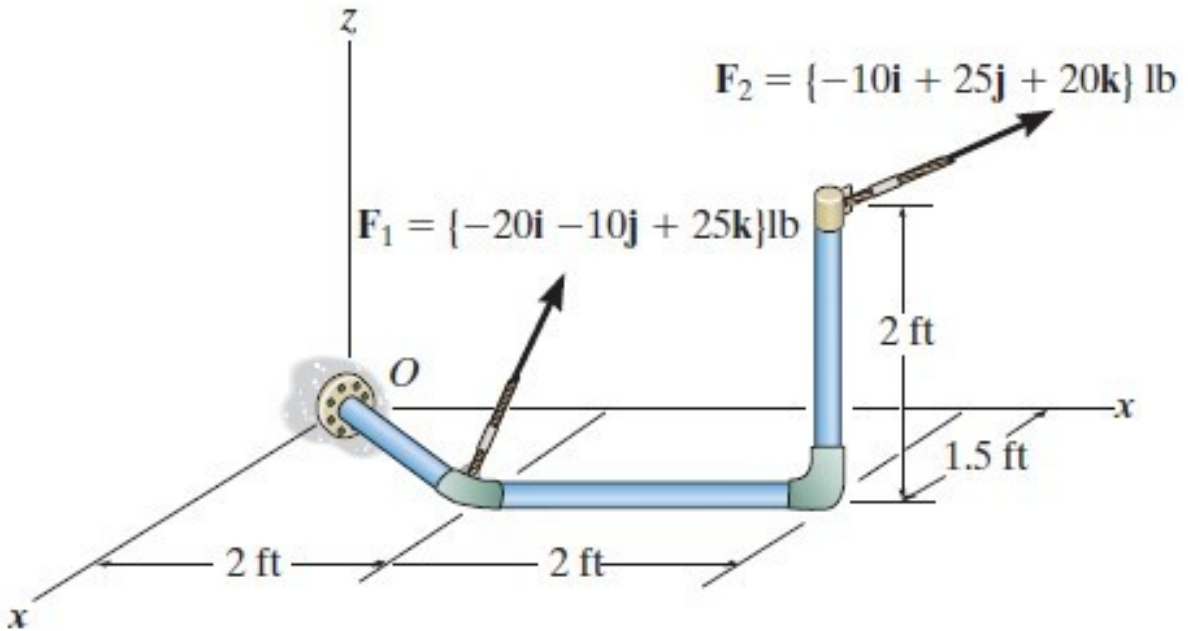
***2–112.** Determine the projected component of the force $F_{AB} = 560$ N acting along cable AC. Express the result as a Cartesian vector.



Q3) **•4–117.** The slab is to be hoisted using the three slings shown. Replace the system of forces acting on slings by an equivalent force and couple moment at point O. The force $\mathbf{F}_1$ is vertical.



Q4) ***4–116.** Replace the force system acting on the pipe assembly by a resultant force and couple moment at point O. Express the results in Cartesian vector form.



Q5)

4–115. Handle forces $\mathbf{F}_1$ and $\mathbf{F}_2$ are applied to the electric drill. Replace this force system by an equivalent resultant force and couple moment acting at point O. Express the results in Cartesian vector form.