1. Two forces $P$ and $Q$ are applied as shown to an aircraft connection. Knowing that the connection is in equilibrium and that $P = 400$ lb and $Q = 520$ lb, determine the magnitudes of the forces exerted on the rods $A$ and $B$. 
2. Three cables are used to tether a balloon as shown. Determine the vertical force $P$ exerted by the balloon at $A$ knowing that the tension in cable $AB$ is 60 lb.
3. A 4-ft-long beam is loaded as shown to the right. Circle whether the loadings below are equivalent (E) or not equivalent (NE). Be sure to show your work.

E or NE

E or NE

E or NE

E or NE

E or NE
4. Replace the loading by an equivalent resultant force and specify where its line of action intersects the beam, measured from point $B$. 

![Beam diagram with forces and lengths marked]