1. (10 points) Describe the vector shown in terms of its rectangular components, given that its magnitude is 40 lb.
2. (25 points) 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 $Q = 600$ lb, determine the magnitudes of the forces exerted on the rods $A$ and $B$. 

![Diagram showing forces $P$, $Q$, $F_A$, and $F_B$.]
3. (40 points) A wooden board $AB$, which is used as a temporary prop to support a small roof, exerts at point $A$ of the roof a 50-lb force directed along $BA$. Determine the moment about $C$ of that force.
4. (25 points) The tension in the cable attached to end C of an adjustable boom ABC is 500 lb. Replace the force exerted by the cable at C with an equivalent force-couple system at point A.