Two forces $F_A$ and $F_B$ act at a point. The resultant force $F_R$ has magnitude 600 lb and acts along the positive x-axis. Determine the magnitude of $F_B$ and the angle it forms with the x-axis $\theta_B$. 

\[ F_A = 500 \text{ lb} \]
For $\mathbf{F}_R = \mathbf{F}_1 + \mathbf{F}_2$, determine the magnitude and direction angles of $\mathbf{F}_R$. 

Diagram: 
- $F_1 = 80$ lb
- $F_2 = 130$ lb
- Angles: 30°, 40°
3.)

(a) Draw a free-body diagram of pulley C or point C.
(b) Determine the downward force $F$ required for equilibrium and the corresponding tension in the cable $ACB$. The pulleys are ideal pulleys.

*Solutions without free-body diagrams will receive zero credit.*
4.)

Point B has coordinates (-1.5, 2, 2) m. The tension force in cable BD is 600 N. Determine the components of that tension force acting along bar AC and perpendicular to bar AC. Report the magnitude of each component.
3–58. Determine the tension developed in the three cables required to support the traffic light, which has a mass of 15 kg. Take $h = 4$ m.
6.)

**F4-15.** Determine the magnitude of the moment of the 200-N force about the x axis. Solve the problem using both a scalar and a vector analysis.