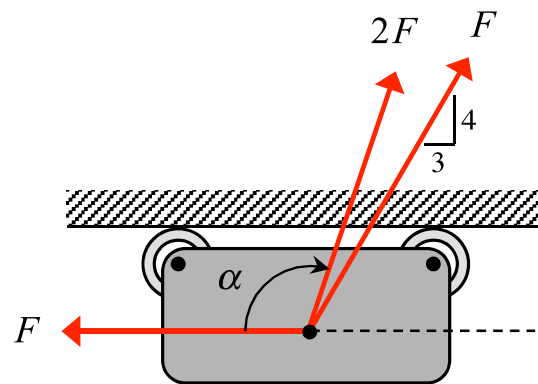


Homework H2.A

Given: Three forces act on the roller guide shown.

Find: Determine the angle α for which the resultant of the three applied forces has a zero horizontal component.



Homework H2.B

Given: Pre-tensioned cables AB and AD, having tensions of $2T$ and T , respectively, are attached to end A of the L-shaped bracket and exert forces of $\vec{F}_{AB}$ and $\vec{F}_{AD}$, respectively, on the bracket due to these tensions.

Find:

- Determine the unit vector and force vector for $\vec{F}_{AB}$.
- Determine the unit vector and force vector for $\vec{F}_{AD}$.
- Calculate the direction cosines and direction angles for $\vec{F}_{AD}$.
- Determine the resultant of $\vec{F}_{AB}$ and $\vec{F}_{AD}$.

Use the following parameter value in your analysis: $\phi = 40^\circ$.

