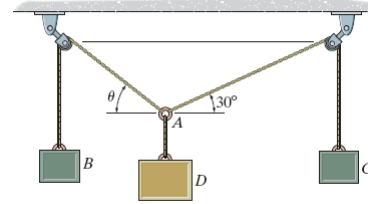


Exercise

\*3-12. If block *B* weighs 1 kN and block *C* weighs 0.5 kN, determine the required weight of block *D* and the angle  $\theta$  for equilibrium.

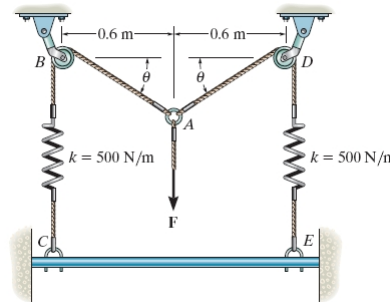
$\theta = 64.34^\circ = 64.3^\circ$      $W_D = 1.151 \text{ kN}$     **Ans.**



Exercise

3-31. The springs on the rope assembly are originally stretched 0.3 m when  $\theta = 0^\circ$ . Determine the vertical force *F* that must be applied so that  $\theta = 30^\circ$ .

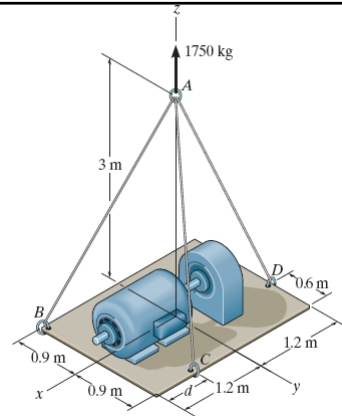
$F = 196.4 \text{ N}$     **Ans**



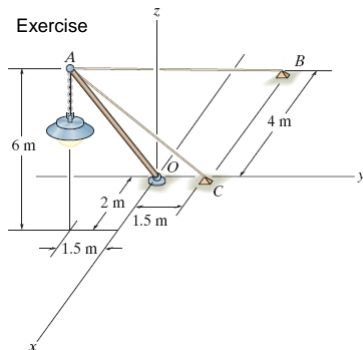
Exercise

3-50. Determine the force in each cable needed to support the 17.5-kN platform. Set  $d = 0.6 \text{ m}$ .

$F_{AB} = 6.848 \text{ kN}$     **Ans**  
 $F_{AC} = 3.721 \text{ kN}$     **Ans**  
 $F_{AD} = 8.518 \text{ kN}$     **Ans**



Exercise



3-74. The lamp has a mass of 15 kg and is supported by a pole *AO* and cables *AB* and *AC*. If the force in the pole acts along its axis, determine the forces in *AO*, *AB*, and *AC* for equilibrium.

$F_{AB} = 110 \text{ N}$      $F_{AC} = 85.8 \text{ N}$      $F_{AO} = 319 \text{ N}$     **Ans**