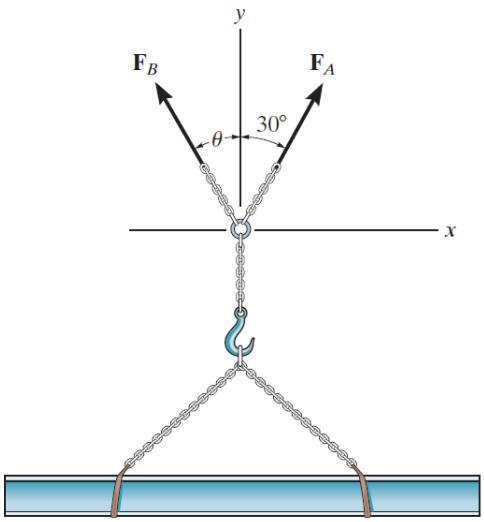
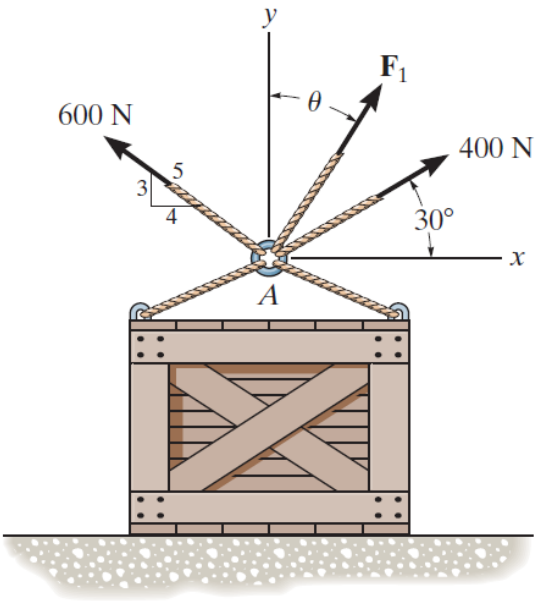
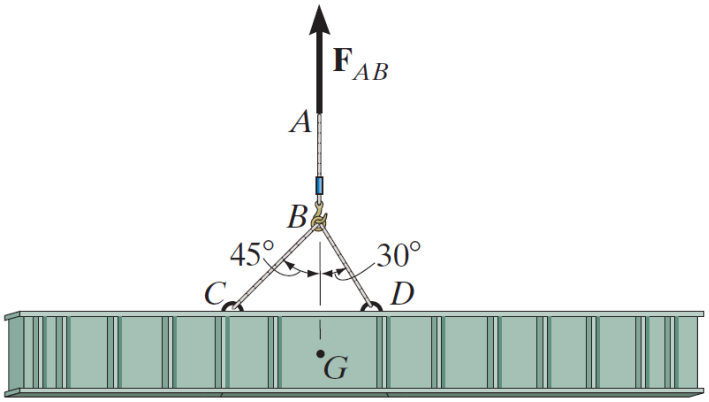
1. The beam is hoisted using two chains. Determine the magnitudes of forces $\mathbf{F}_A$ and $\mathbf{F}_B$ acting on each chain in order to develop a resultant force of 600 N directed along positive y axis. Set $\theta = 45^0$. 【如图所示，若设 $\theta = 45^0$，试求产生沿正 y 方向大小为 600 N 的合力所需的 $\mathbf{F}_A$ and $\mathbf{F}_B$。】



2. Determine the magnitude of F1 and its direction θ so that the resultant force is directed vertically upward and has a magnitude of 800 N. 【如图所示，试求产生竖直向上 800 N 的合力所需的 $\mathbf{F}_1$ 的大小和方向（θ 角）。】



3. If the mass of the girder is 3 Mg and its center of mass is located at point *G*, determine the tension developed in cables *AB*, *BC*, and *BD* for equilibrium. 【如图所示，若钢梁的重量为 3 Mg，重心位于点 *G*，试求线缆 *AB*, *BC*, 和 *BD* 在平衡状态下所受拉力。】



4. The gusset plate is subjected to the forces of four members. Determine the force in member *B* and its proper orientation θ for equilibrium. The forces are concurrent at point *O*. Take *F* = 12 kN.. 【如图所示，若 *F* = 12 kN，试求平衡状态下构件 *B* 内所受力的大小和方向（θ 角）。设该平面力系汇交于点 *O*。】