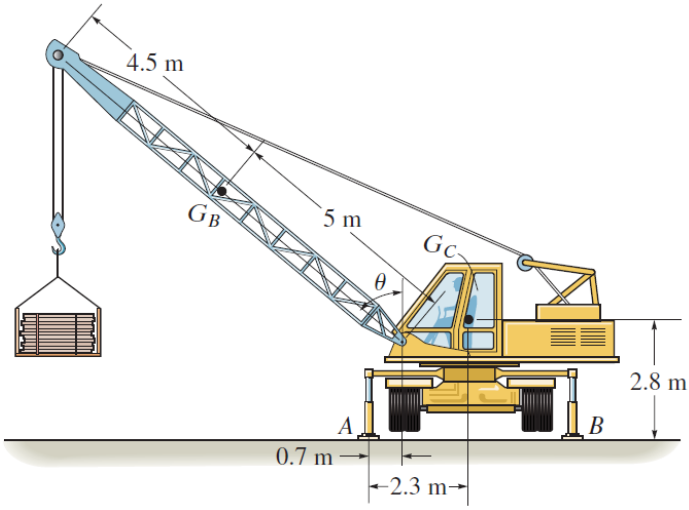
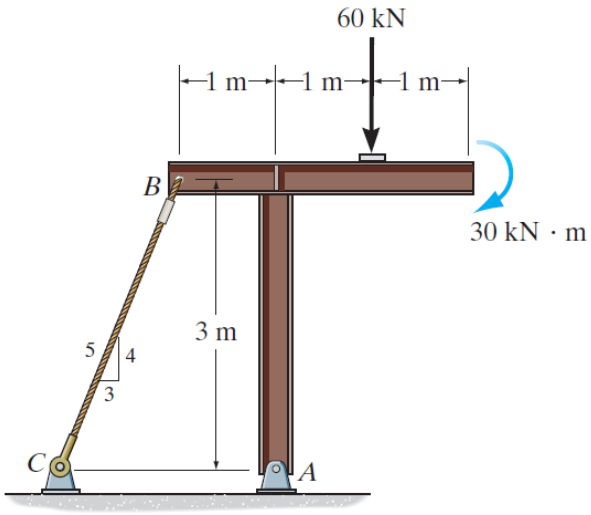
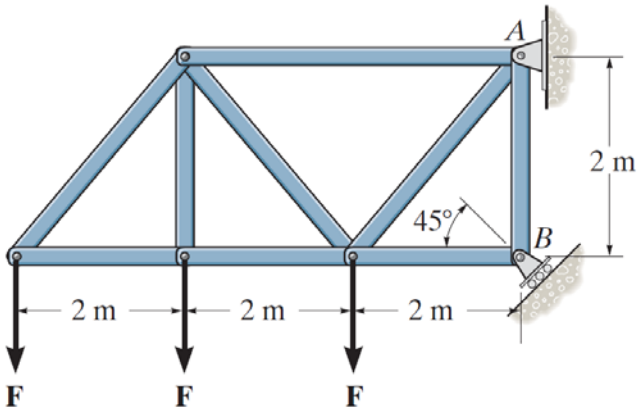
1. Outriggers *A* and *B* are used to stabilize the crane from overturning when lifting large loads. If the load to be lifted 3 Mg, determine the maximum boom angleθ so that the crane does not overturn. The crane has a mass of 5 Mg and center of mass at G_C, whereas the boom has a mass of 0.6 Mg and center of mass at G_B. 【如图所示鹤式起重机，支腿 *A* 和 *B* 用于防止侧翻。起重机重量为 5 Mg，重心位于 G_C，吊臂重量为 0.6 Mg，重心位于 G_B，若起吊重量为 3 Mg，试求起重机不发生侧翻所允许的吊臂最大倾角 θ。】



2. Determine the horizontal and vertical components of reaction at the pin *A* and the tension developed in cable *BC* used to support the steel frame. 【试求图示刚架支撑 *A* 处的水平和竖直反作用力，并求绳缆 *BC* 内的拉力。】



3. Determine the horizontal and vertical components of reaction at the pin *A* and the reaction at the roller *B* required to support the truss. Set *F* = 600 N. 【试求图示桁架支撑 *A* 处的水平和竖直反作用力，并求可移动支撑 *B* 处的反作用力。设 *F* = 600 N。】



4. As an airplane's brakes are applied, the nose wheel exerts two forces on the end of the landing gear as shown. Determine the horizontal and vertical components of reaction at the pin *C* and the force in strut *AB*.【飞机着陆制动时由于重力和地面摩擦的作用，前轮受到图示两个力的共同作用，试求铰接点 *C* 处的反作用力以及支撑杆 *AB* 的内力。】