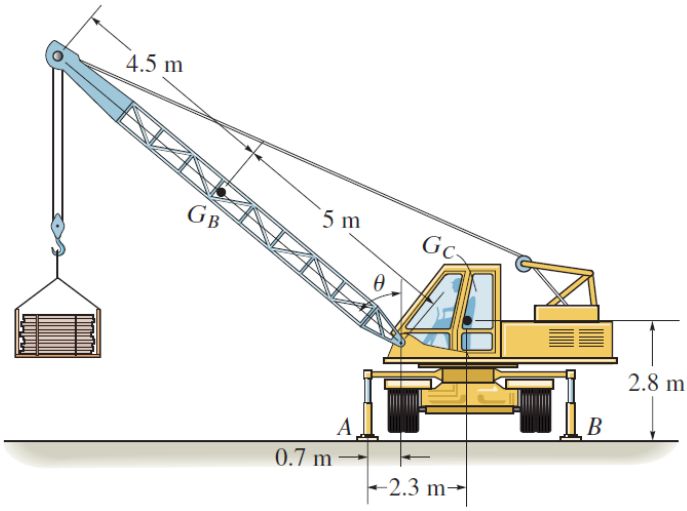
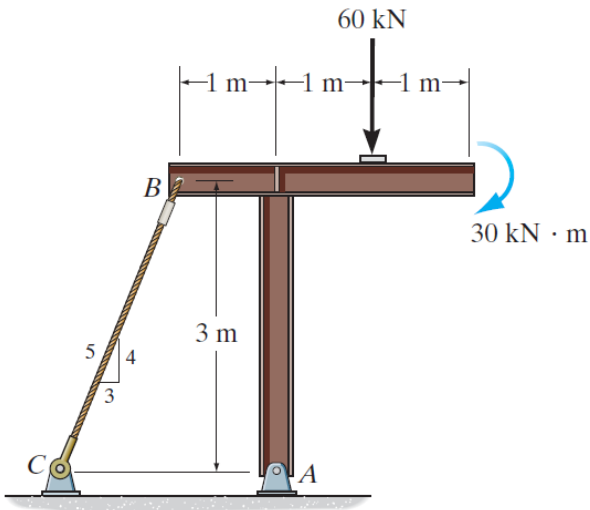
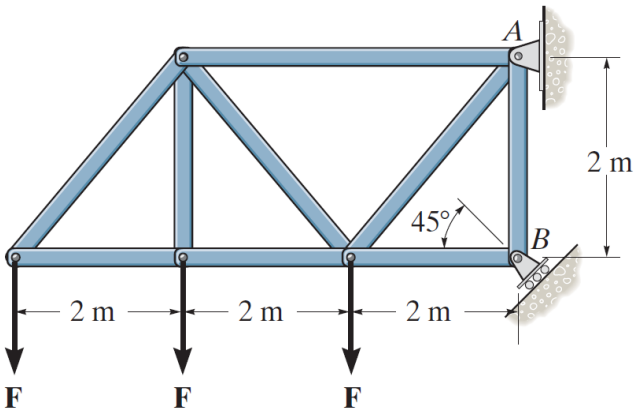
1. Outriggers A and B are used to stabilize the crane from overturning when lifting large loads. If the load to be lifted 3 Mg, determine the maximum boom angleθ so that the crane does not overturn. The crane has a mass of 5 Mg and center of mass at G_C, whereas the boom has a mass of 0.6 Mg and center of mass at G_B.



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.



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.



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*.