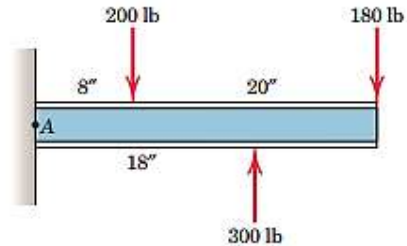


Force and moment simplification

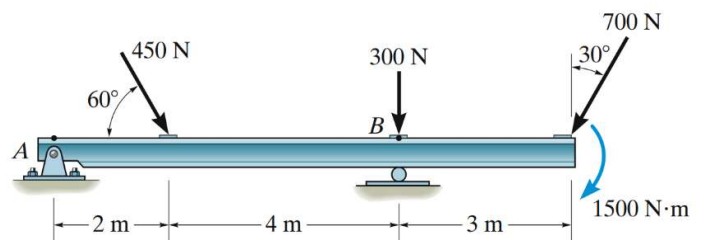
Problem 1:

Reduce the given loading system to a force–couple system at point **A**. Then determine the distance x to the right of point **A** at which the resultant of the three forces acts (Fig.1).



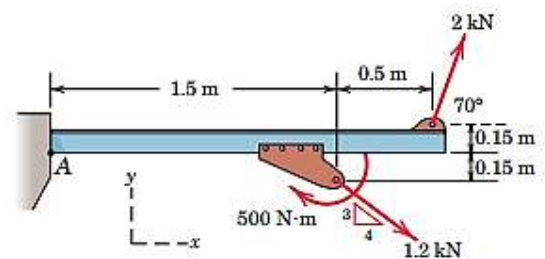
Problem 2:

Replace the loading acting on the beam by a single resultant force. Specify where the force acts, measured from end **A** (Fig.2).



Problem 3:

The flanged steel cantilever beam with riveted bracket is subjected to the couple and two forces shown, and their effect on the design of the attachment at **A** must be determined. Replace the two forces and couple by an equivalent couple **M** and resultant force **R** at **A**. (Fig.3).



Problem 4:

Replace the two wrenches and the force, acting on the pipe assembly, by an equivalent resultant force and couple moment at point **O** (Fig.4).

