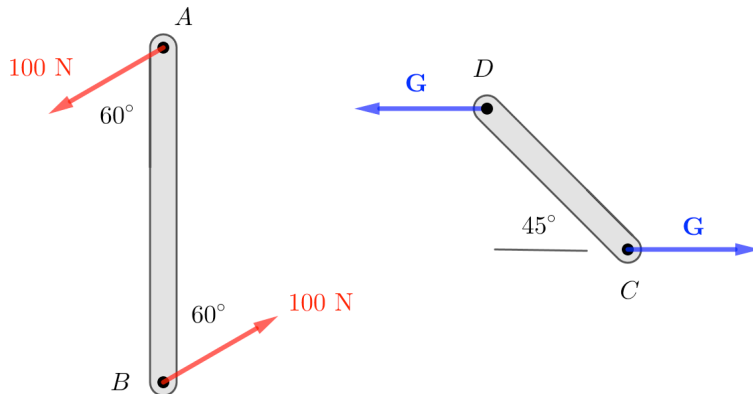


Lesson Objective: Replace a system of forces with an equivalent force and couple at a given point.

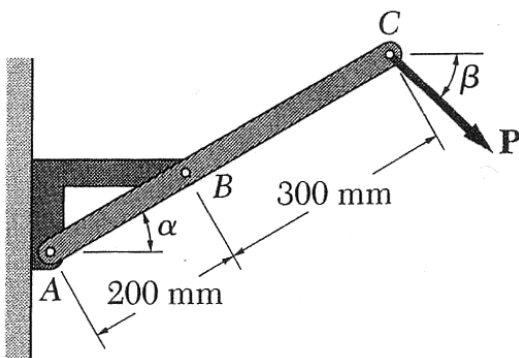
Example 1

Link AB is 5 m long, and CD is 3 m long. Determine the magnitude of G such that the two systems are equivalent.



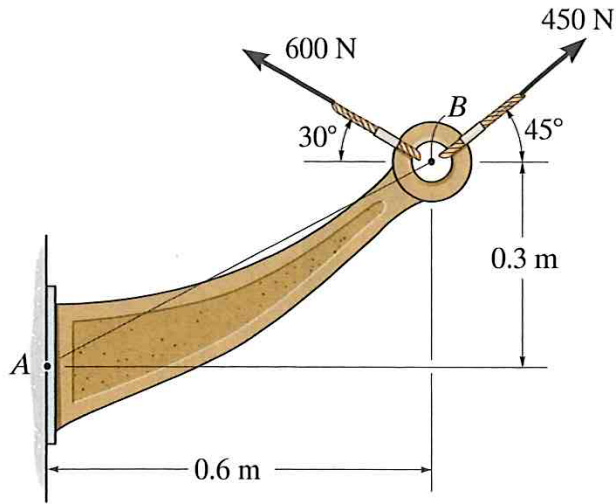
Example 2

The force P has a magnitude of 250 N and is applied to the end C of the 500-mm rod AC attached to a bracket at A and B . Assuming $\alpha = 30^\circ$ and $\beta = 60^\circ$, replace P by (a) an equivalent force-couple system at B , (b) an equivalent system formed by two parallel force applied at A and B .



Example 3

Replace the force system acting on the bracket by a resultant force and couple moment at point A.



Example 4

Replace the loading system by a single force **R**, and specify the point where the force's line of action must intersect the horizontal bar in order to maintain equivalence.

