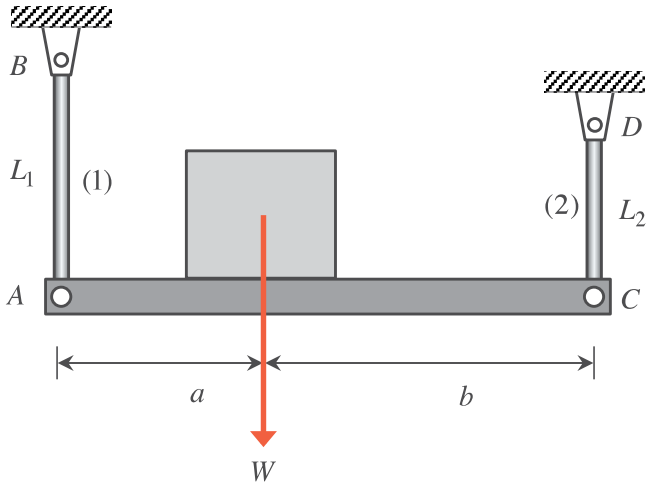
Homework H31.A

Given: A rigid platform is supported by rods (1) and (2), with the rods having equal cross-sectional areas of A. The platform, in turn, supports a crate having a weight of W. Consider the weight of the platform and rods to be negligible compared to the weight of the crate.

Find: Determine the stress in each rod.

For this problem, use the following parameters: a = 2 ft, b = 3 ft, A = 4 in^2 and W = 2000 lb.



Homework H31.B

Given: A rod is made up of members (1), (2) and (3) with these members having diameters of d, $2d$ and $3d$, respectively. All members of the rod are made up of an aluminum alloy 6061-T6.

Find: For this problem:

a) Determine the stress and strain in each member of the rod.

b) Has the material failed due to yielding in any of the three members? If not, what is the factor of safety for this loading against yielding?

For this problem, use the following parameters: d = 3 in and P = 50 kips.