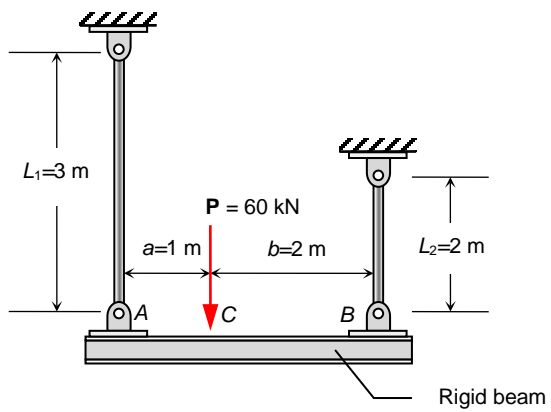

Example

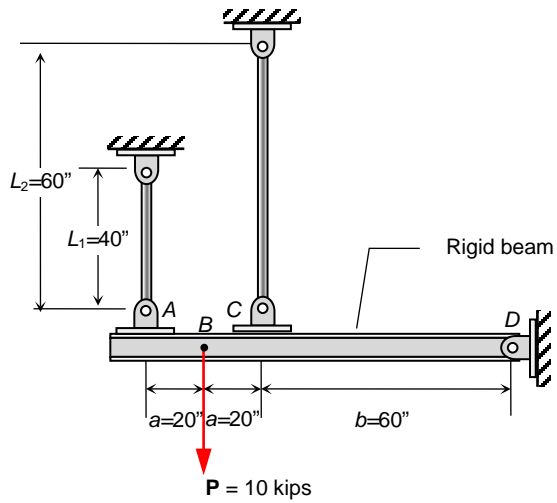
A rigid beam is supported by two vertical rods. Rod A has a diameter of $d_A = 25$ mm and rod B has a diameter of $d_B = 10.2$ mm. Both rods are made of steel ($E=210$ GPa). For the 60 kN force applied as shown,

- (a) find the reactions at A and B, and
- (b) the displacements of each rod.



Example

Two steel ($E=30 \times 10^3$ ksi) rods both with cross sectional area $A=1.0$ in² are used to support a rigid beam connected to a wall via a smooth pin. A 10 kip point load is applied to the beam at the location shown. Neglecting the weight of the beam, find the tension in each rod.



Example

A rigid, weightless beam is supported by a smooth pin at B . Two aluminum ($E=70$ GPa) rods, both with cross sectional area $A=200$ mm², also support the rod at pins A and C . For the 24 kN load at D ,

- find the rotation angle of the rod,
- the force in each rod, and
- the stress in each rod.

