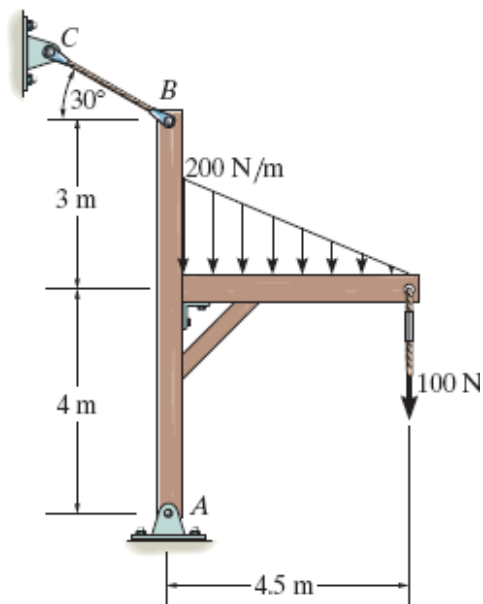


## PROBLEMS # 4

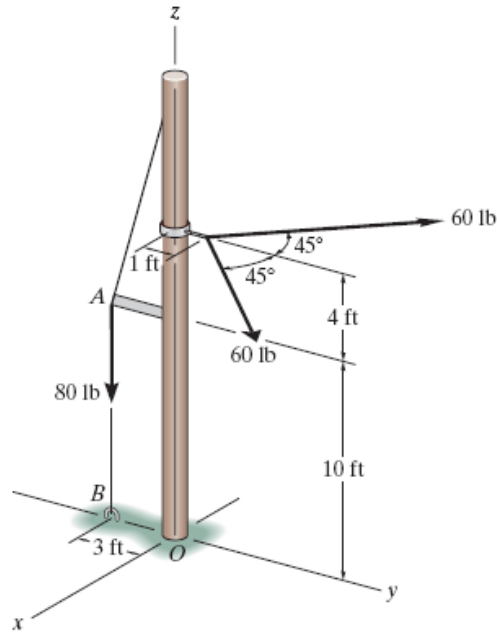
**Topics**                      Equilibrium of a rigid body (Chapter 5 in textbook).

**Textbook:**                Engineering Mechanics, by R.C. Hibbeler, Pearson, 12th Edition.

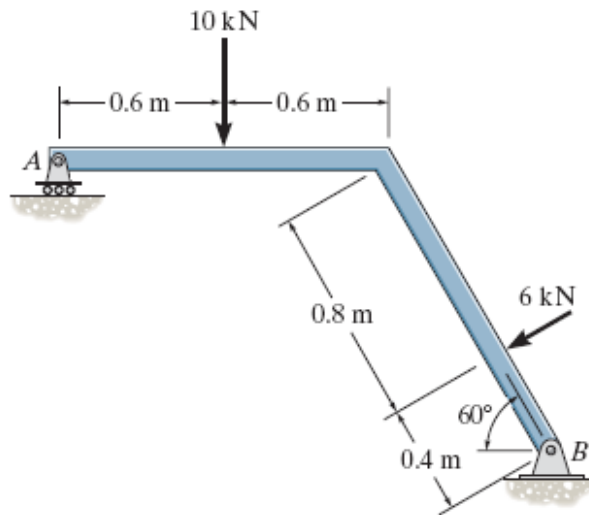
- 5–88. Determine the horizontal and vertical components of reaction at pin A and force in the cable BC. Neglect the thickness of the members.



\*5-64. The pole for a power line is subjected to the two cable forces of 60 lb, each force lying in a plane parallel to the plane. If the tension in the guy wire  $AB$  is 80 lb, determine the  $x, y, z$  components of reaction at the fixed base of the pole,  $O$ .

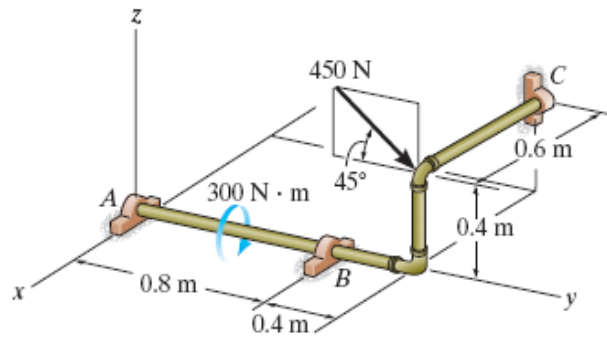


5-91. Determine the normal reaction at the roller  $A$  and horizontal and vertical components at pin  $B$  for equilibrium of the member.

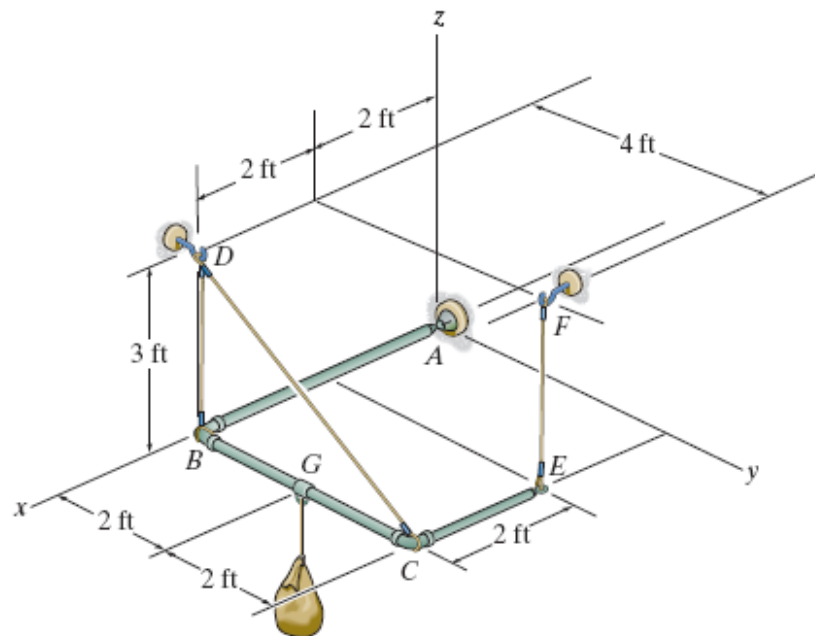


**\*5-72.** Determine the components of reaction acting at the smooth journal bearings (pin) A, B, C.

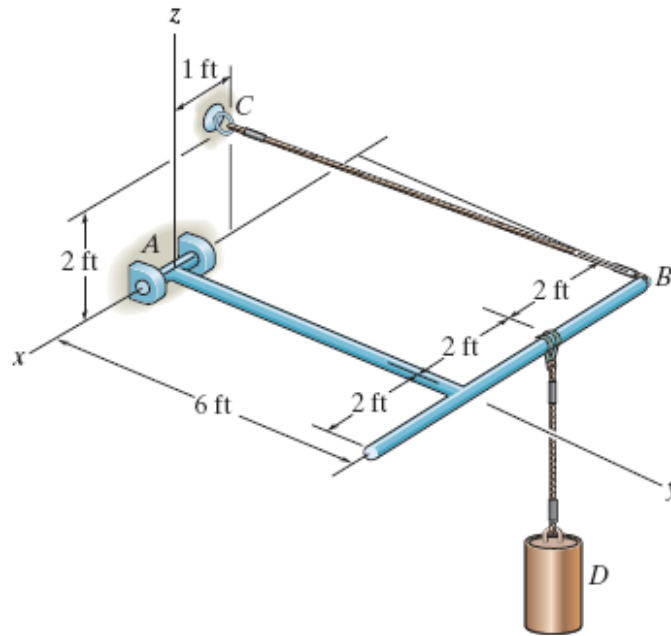
Hint: The supports at A and B is a pin that allow translation along y-axis, and the support at C, allows translation along x-axis.



**5-74.** If the load has a weight of 200 lb, determine the x, y, z components of reaction at the ball-and-socket (pin) joint A and the tension in each of the wires.



\*5-76. The member is supported by a pin at  $A$  and a cable  $BC$ . If the load at  $D$  is 300 lb, determine the  $x$ ,  $y$ ,  $z$  components of reaction at the support  $A$  (fixed, but it allows rotation around  $x$ ) and the tension in cable  $BC$ .



5-69. The shaft is supported by three smooth journal bearings at  $A$ ,  $B$ , and  $C$ . Determine the components of reaction at these bearings.  
 Hint:  $A$  and  $B$  allow translation along  $y$ -direction, and  $C$  allows translation along  $x$ -direction.

