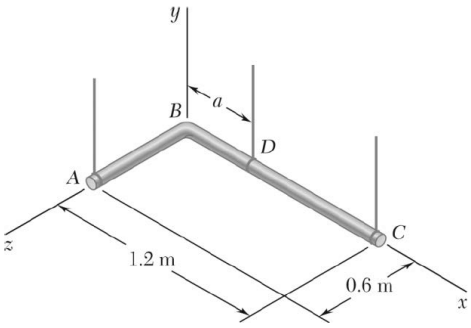
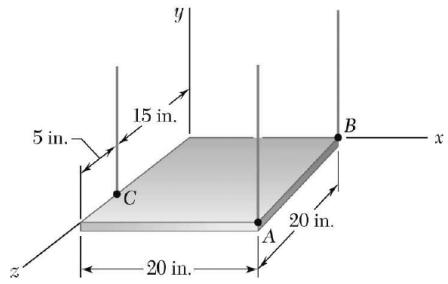



## PROBLEM 4.97

Two steel pipes $AB$ and $BC$, each having a mass per unit length of 8 kg/m, are welded together at $B$ and supported by three wires. Knowing that $a = 0.4$ m, determine the tension in each wire.

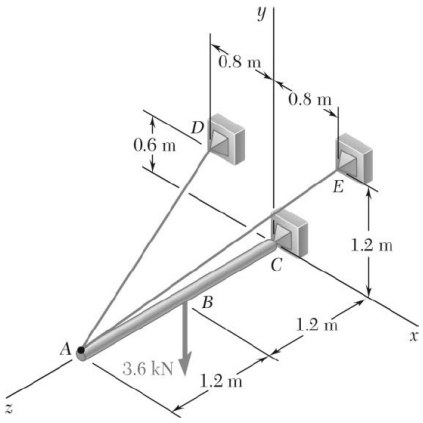
Ans. $T_A = 23.5$ N, $T_B = 11.77$ N, $T_C = 105.9$ N




## PROBLEM 4.99

The 45-lb square plate shown is supported by three vertical wires. Determine the tension in each wire.

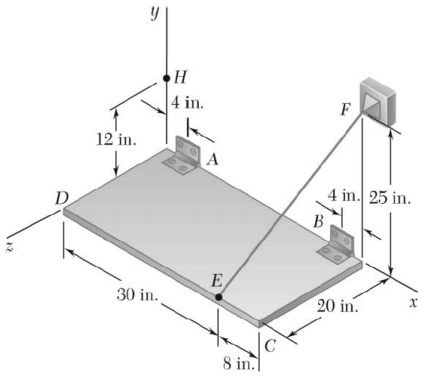
Ans. $T_A = 5.63$ lb, $T_B = 16.88$ lb, $T_C = 22.50$ lb




## PROBLEM 4.105

A 2.4-m boom is held by a ball-and-socket joint at $C$ and by two cables $AD$ and $AE$. Determine the tension in each cable and the reaction at $C$.

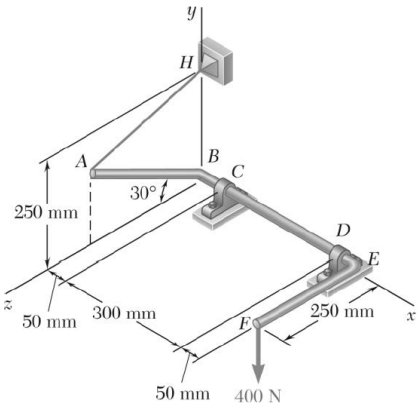
Ans. $T_{AE} = 2.80$ kN




## PROBLEM 4.115

The rectangular plate shown weighs 75 lb and is held in the position shown by hinges at *A* and *B* and by cable *EF*. Assuming that the hinge at *B* does not exert any axial thrust, determine (*a*) the tension in the cable, (*b*) the reactions at *A* and *B*.

Ans. (a) $T$ = 49.5 lb (b) $\boldsymbol{A}$ = -12.0**i** +22.5**j** – 4.0**k** lb, $\boldsymbol{B}$ = 15.0**j** +34.0**k** lb




## PROBLEM 4.118

The bent rod *ABEF* is supported by bearings at *C* and *D* and by wire *AH*. Knowing that portion *AB* of the rod is 250 mm long, determine (*a*) the tension in wire *AH*, (*b*) the reactions at *C* and *D*. Assume that the bearing at *D* does not exert any axial thrust.

Ans. $T = 462$ N