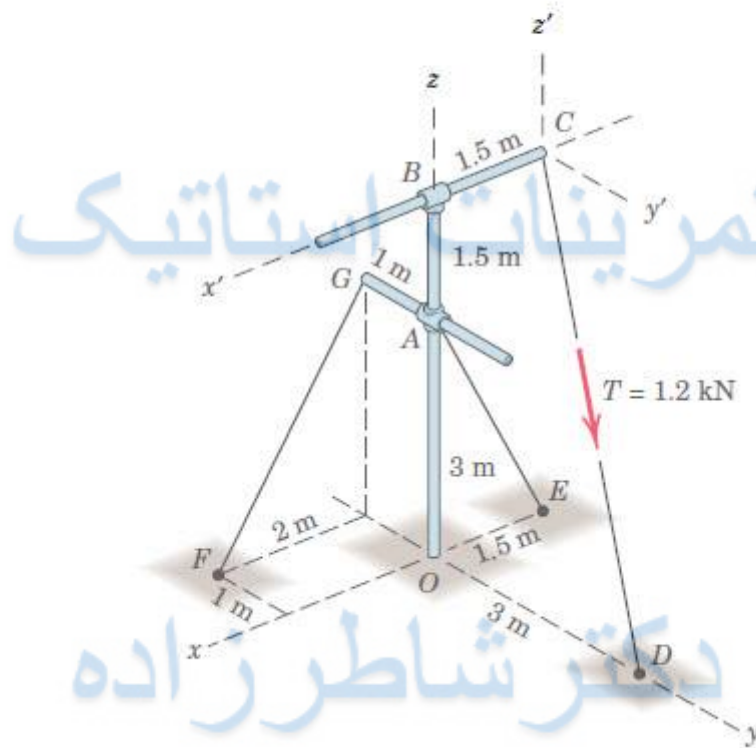


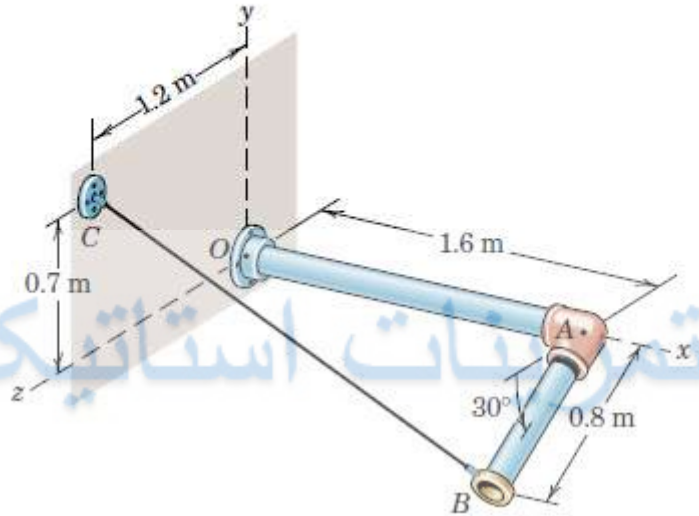
1

The rigid pole and cross-arm assembly is supported by the three cables shown. A turnbuckle at D is tightened until it induces a tension T in CD of 1.2 kN. Express T as a vector. Does it make any difference in the result which coordinate system is used?



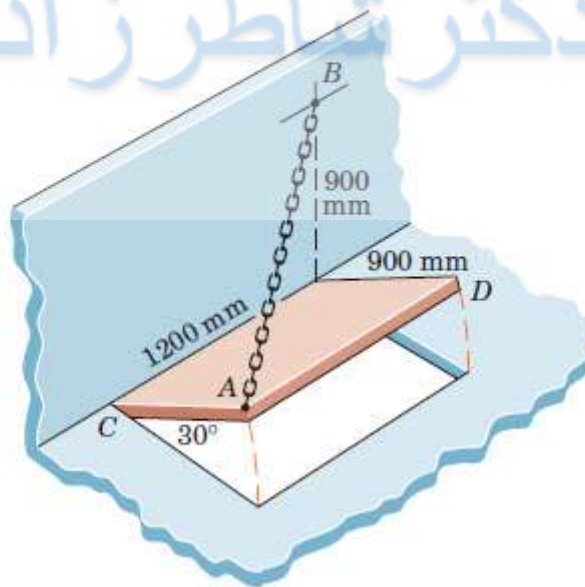
2

The cable BC carries a tension of 750 N. Write this tension as a force T acting on point B in terms of the unit vectors i , j , and k . The elbow at A forms a right angle.



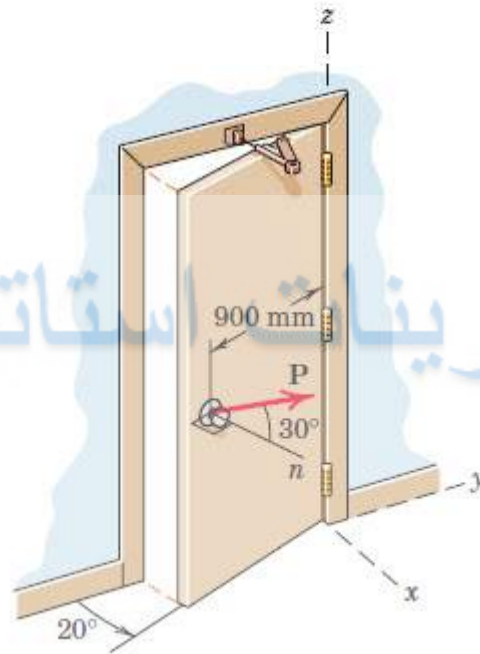
3

The access door is held in the 30° open position by the chain AB . If the tension in the chain is 100 N, determine the projection of the tension force onto the diagonal axis CD of the door.



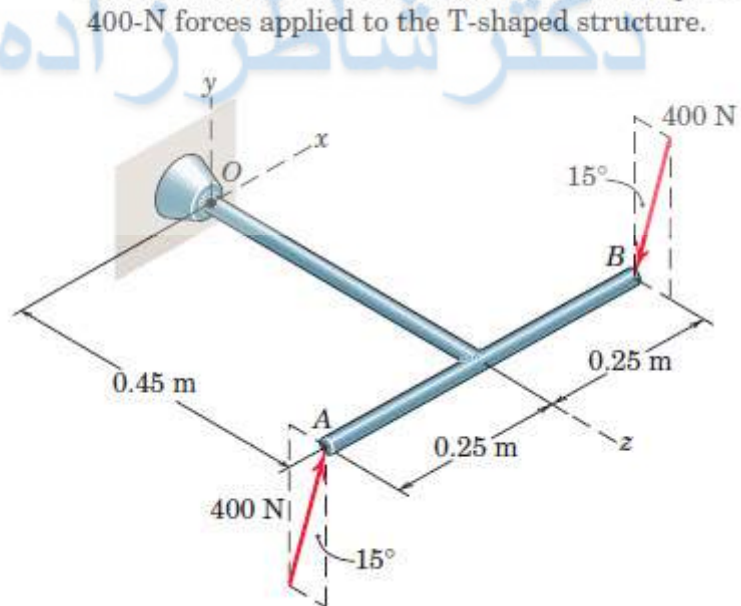
4

In opening a door which is equipped with a heavy-duty return mechanism, a person exerts a force P of magnitude 32 N as shown. Force P and the normal n to the face of the door lie in a vertical plane. Compute the moment of P about the z -axis.

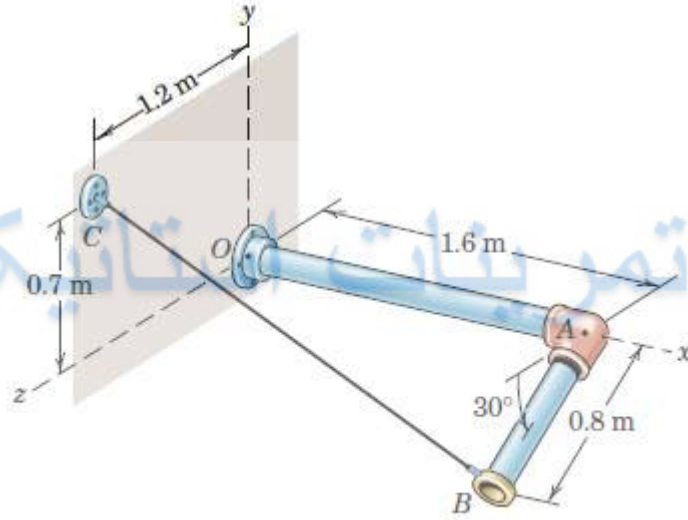


5

Determine the moment associated with the pair of 400-N forces applied to the T-shaped structure.

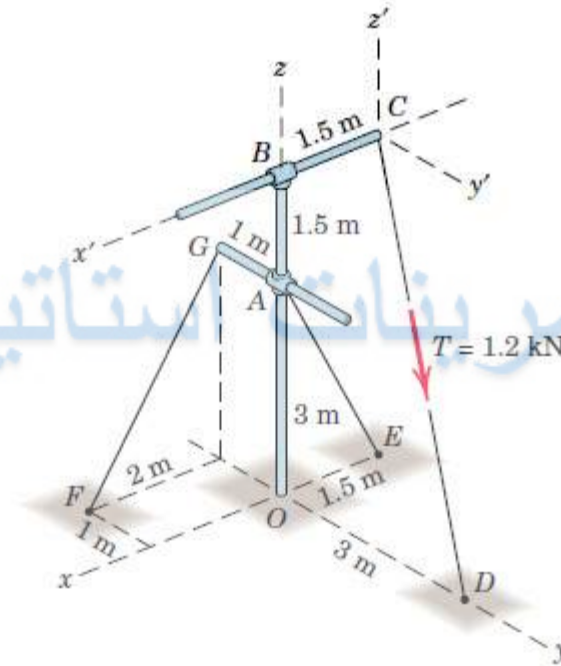


The right-angle pipe OAB of Prob. 2/108 is shown again here. Replace the 750-N tensile force which the cable exerts on point B by a force-couple system at point O .



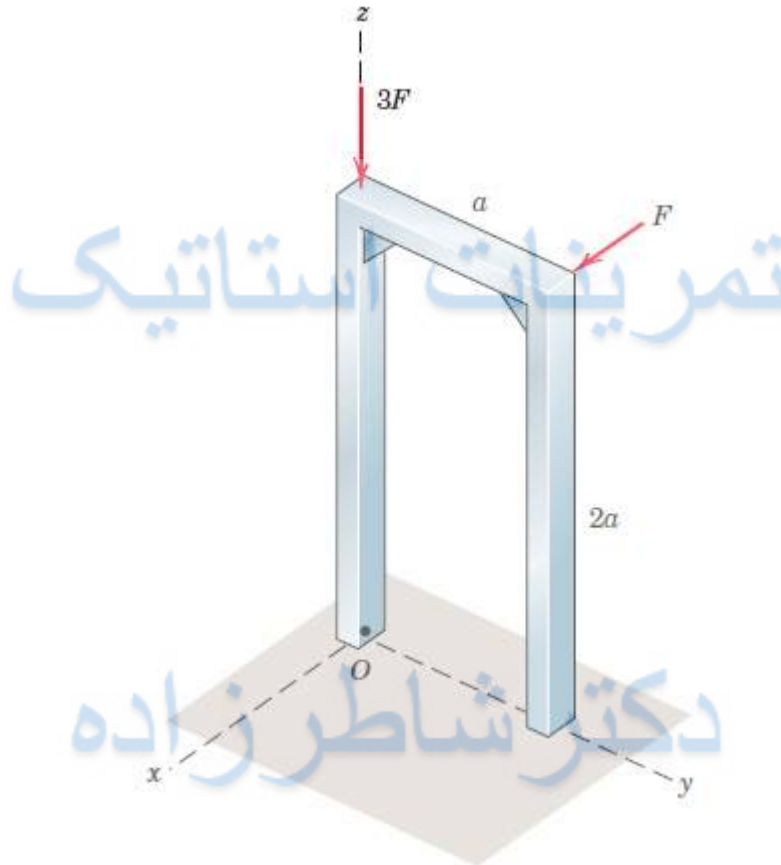
دکتر شاطرزاده

The rigid pole and cross-arm assembly of Prob. 2/105 is shown again here. Determine the vector expression for the moment of the 1.2-kN tension (a) about point O and (b) about the pole z -axis. Find each moment in two different ways.

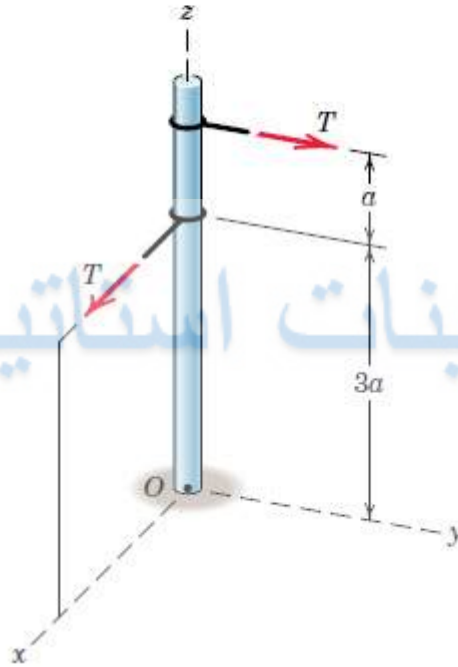


دکتر شاطرزاده

Replace the two forces acting on the frame by a wrench. Write the moment associated with the wrench as a vector and specify the coordinates of the point P in the y - z plane through which the line of action of the wrench passes. Note that the force of magnitude F is parallel to the x -axis.



Replace the two forces acting on the pole by a wrench. Write the moment M associated with the wrench as a vector and specify the coordinates of the point P in the y - z plane through which the line of action of the wrench passes.



دکتر شاطرزاده