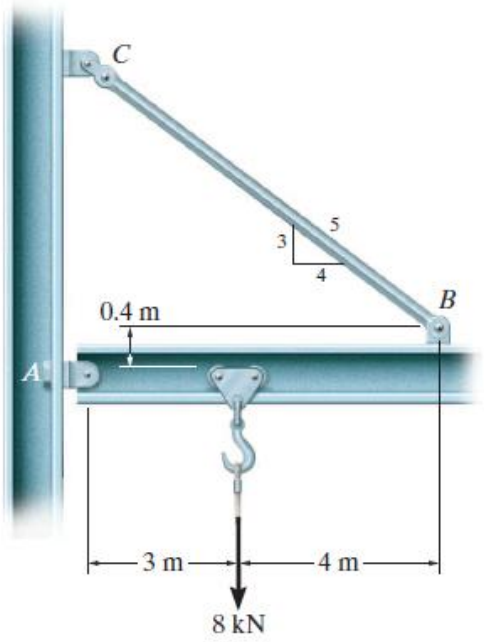
TOBB UNIVERSITY OF ECONOMICS AND TECHNOLOGY

MAK104 STATICS

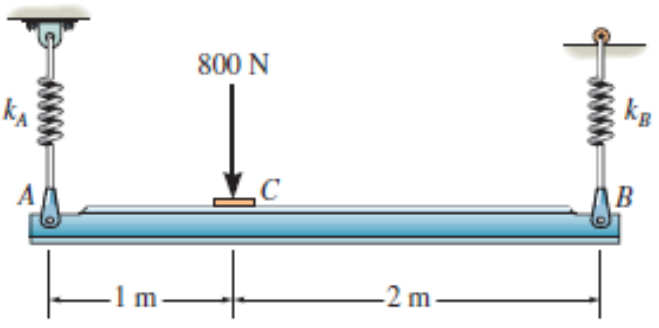
2017-2018 SUMMER

WORKING PROBLEMS – 5

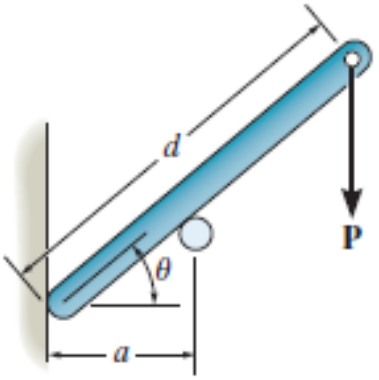
1.Draw the free-body diagram of the jib crane *AB*, which is pin connected at *A* and supported by member (link) *BC*.



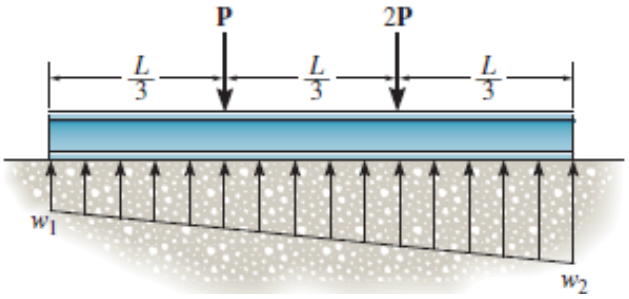
2. The horizontal beam is supported by springs at its ends. If the stiffness of the spring at *A* is $k_{A=}$ 5Kn/m, determine the required stiffness of the spring at *B* so that if the beam is loaded with the 800 N force it remains in the horizontal position. The springs are originally constructed so that the beam is in the horizontal position when it is unloaded.



3. If d=1 m , and $\theta=30^0$, determine the normal reaction at the smooth supports and the required distance *a* for the placement of the roller if P=600N . Neglect the weight of the bar.



4. The beam is subjected to the two concentrated loads. Assuming that the foundation exerts a linearly varying load distribution on its bottom, determine the load intensities w_1 and w_2 for equilibrium in terms of the parameters shown.



5. The uniform rod has a length *l* and weight *W*. It is supported at one end *A* by a smooth wall and the other end by a cord of length *s* which is attached to the wall as shown. Determine the placement *h* for equilibrium.