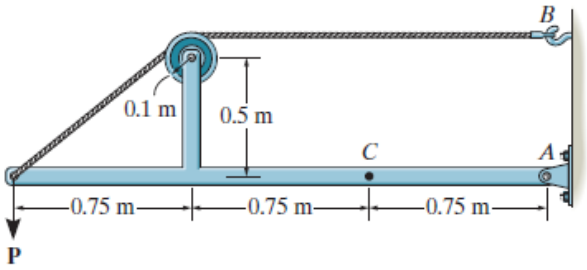
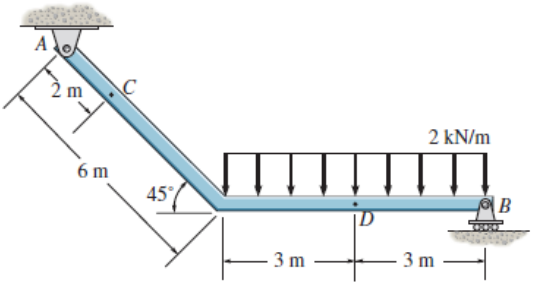
SPRING 2017

MAK104 - WORKING PROBLEMS 8

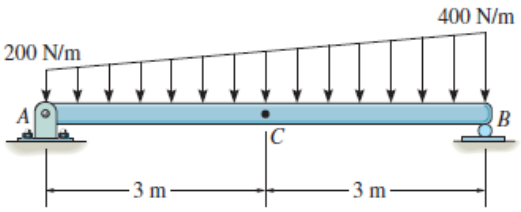
1. The cable will fail when subjected to a tension of 2 kN. Determine the largest vertical load *P* the frame will support and calculate the internal normal force, shear force, and moment at a section passing through point *C* for this loading.



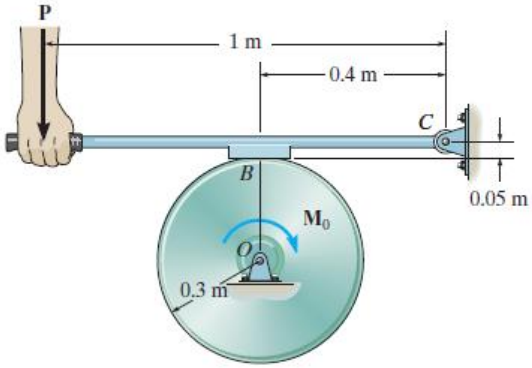
2. Determine the internal normal force, shear force, and the moment at points *C* and *D*.



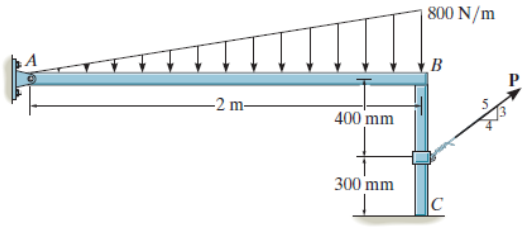
3. Determine the internal normal force, shear force, and moment at point *C* of the beam.



4. The block brake is used to stop the wheel from rotating when the wheel is subjected to a couple moment M_0 = 360 N.m. If the coefficient of static friction between the wheel and the block is μ_s = 0.6, determine the smallest force *P* that should be applied.



5. The beam *AB* has a negligible mass and thickness and is subjected to a triangular distributed loading. It is supported at one end by a pin and at the other end by a post having a mass of 50 kg and negligible thickness. Determine the minimum force *P* needed to move the post.The coefficients of static friction at *B* and *C* are μ_B = 0.4 and μ_C = 0.2, respectively.



6. The 100-kg disk rests on a surface for which μ_B = 0.2. Determine the smallest vertical force **P** that can be applied tangentially to the disk which will cause motion to impend.