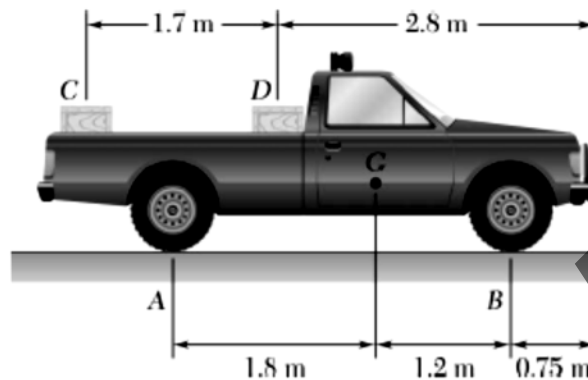
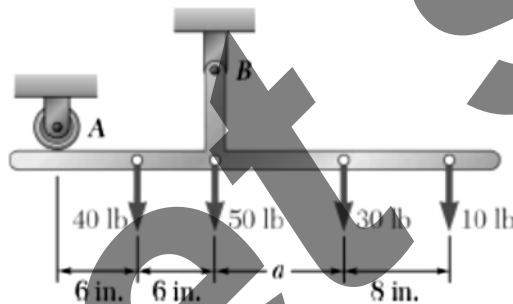


PROBLEMS

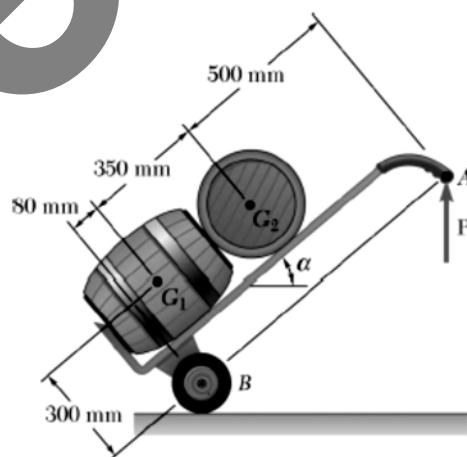
1- Two crates, each of mass 350 kg, are placed as shown in the bed of a 1400-kg pick-up truck. Draw the free-body diagram needed to determine the reactions at each of the two rear wheels A and front wheels B .



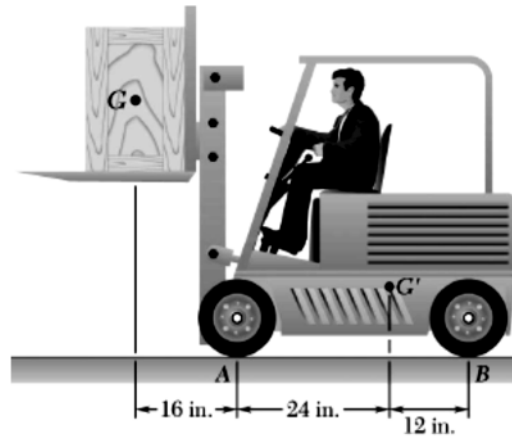
2- A T-shaped bracket supports the four loads shown. Determine the reactions at A and B (a) if $a = 10$ in., (b) if $a = 7$ in.



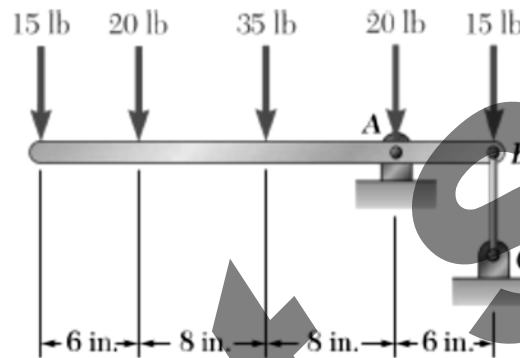
3- A hand truck is used to move two kegs, each of mass 40 kg. Neglecting the mass of the hand truck, determine (a) the vertical force P that should be applied to the handle to maintain equilibrium when $\alpha = 35^\circ$, (b) the corresponding reaction at each of the two wheels.



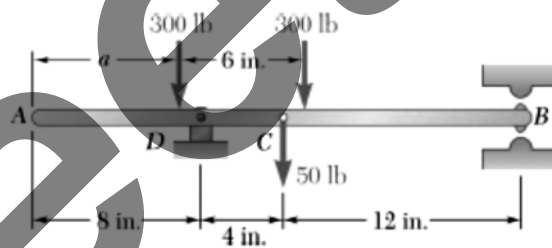
4- A 3200-lb forklift truck is used to lift a 1700-lb crate. Determine the reaction at each of the two (a) front wheels A , (b) rear wheels B .



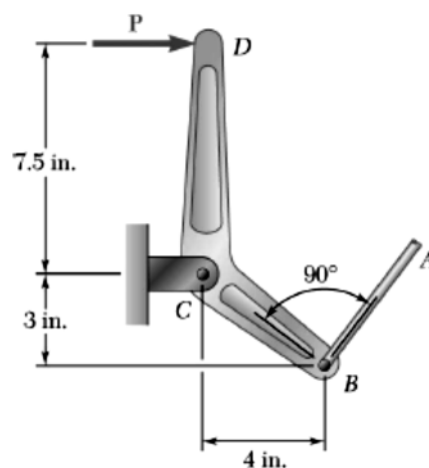
5- For the beam and loading shown, determine (a) the reaction at A , (b) the tension in cable BC .



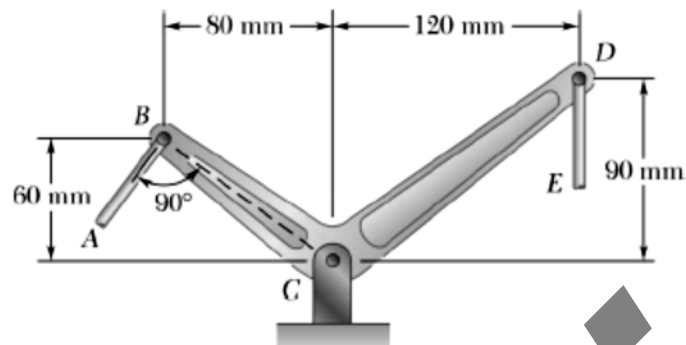
6- For the beam and loading shown, determine the range of the distance a for which the reaction at B does not exceed 100 lb downward or 200 lb upward.



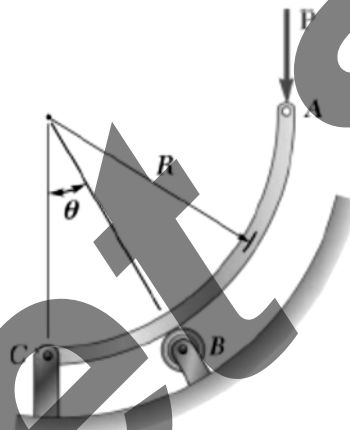
7- The lever BCD is hinged at C and attached to a control rod at B . If $P = 100$ lb, determine (a) the tension in rod AB , (b) the reaction at C .



8- Two links AB and DE are connected by a bell crank as shown. Knowing that the tension in link AB is 720 N, determine (a) the tension in link DE , (b) the reaction at C .



9- Rod ABC is bent in the shape of an arc of circle of radius R . Knowing the $\theta = 30^\circ$, determine the reaction (a) at B , (b) at C .



10- For the beam and loading shown, determine the range of values of W for which the magnitude of the couple at D does not exceed $40 \text{ lb} \cdot \text{ft}$.

