1.Calculate the forces in members EF and FG in Fig.1. (20 points)

2.The frame in Fig.2 carries the loads as shown. Calculate the components of pin reaction at B. (20 points)

3.Fig.3 shows a homogeneous uniform wire hinged at O. Find the length L so that AB will remain horizontal. (20 points)

4.Fig.4 shows a crate on two skids being slide up the plane (to the right) under the action of force P. Given the static friction $\mu = 0.3$, determine the maximum height, h, at which force P can be located so that the crate can slide without tipping. (20 points)

5.A slotted wheel rolls without slipping along a horizontal track, as shown in Fig. 5. At the instant under consideration the velocity of center O is 5 ft/sec toward the right and the wheel has clockwise angular acceleration of 20 rad/sec^2. Determine the velocity and acceleration of point P. (20 points)

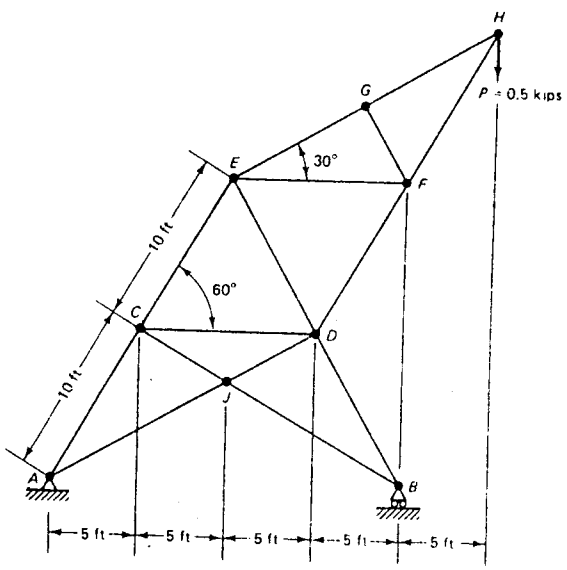

Fig. 1.

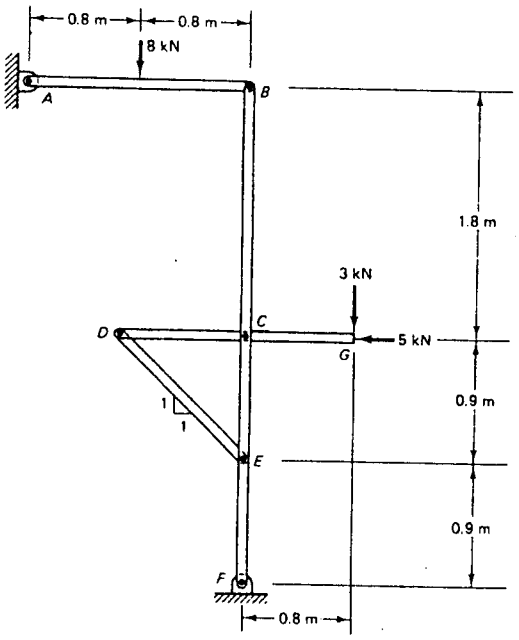

Fig. 2.

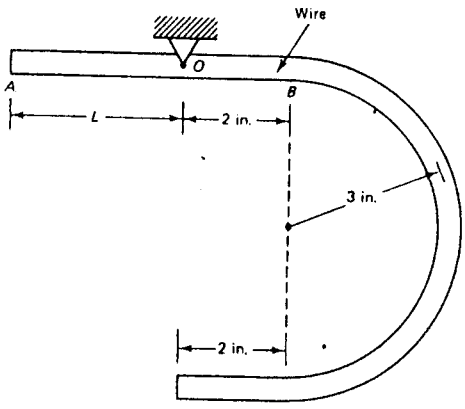

Fig. 3.

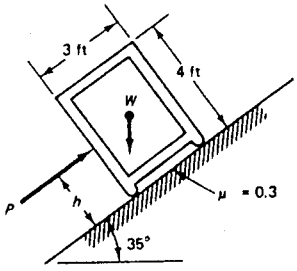

Fig. 4.

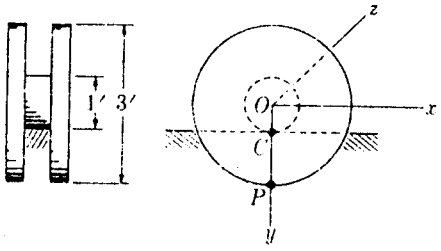

Fig. 5.