

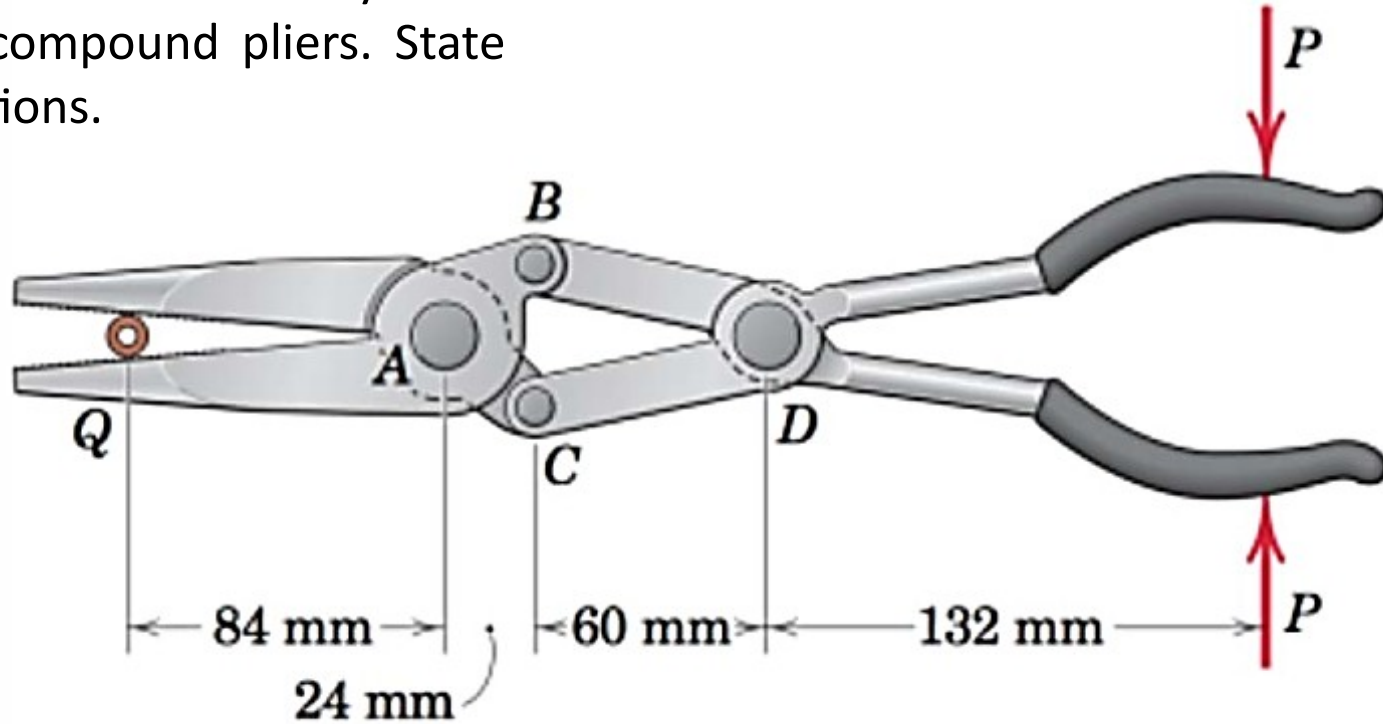
ME 201 STATICS



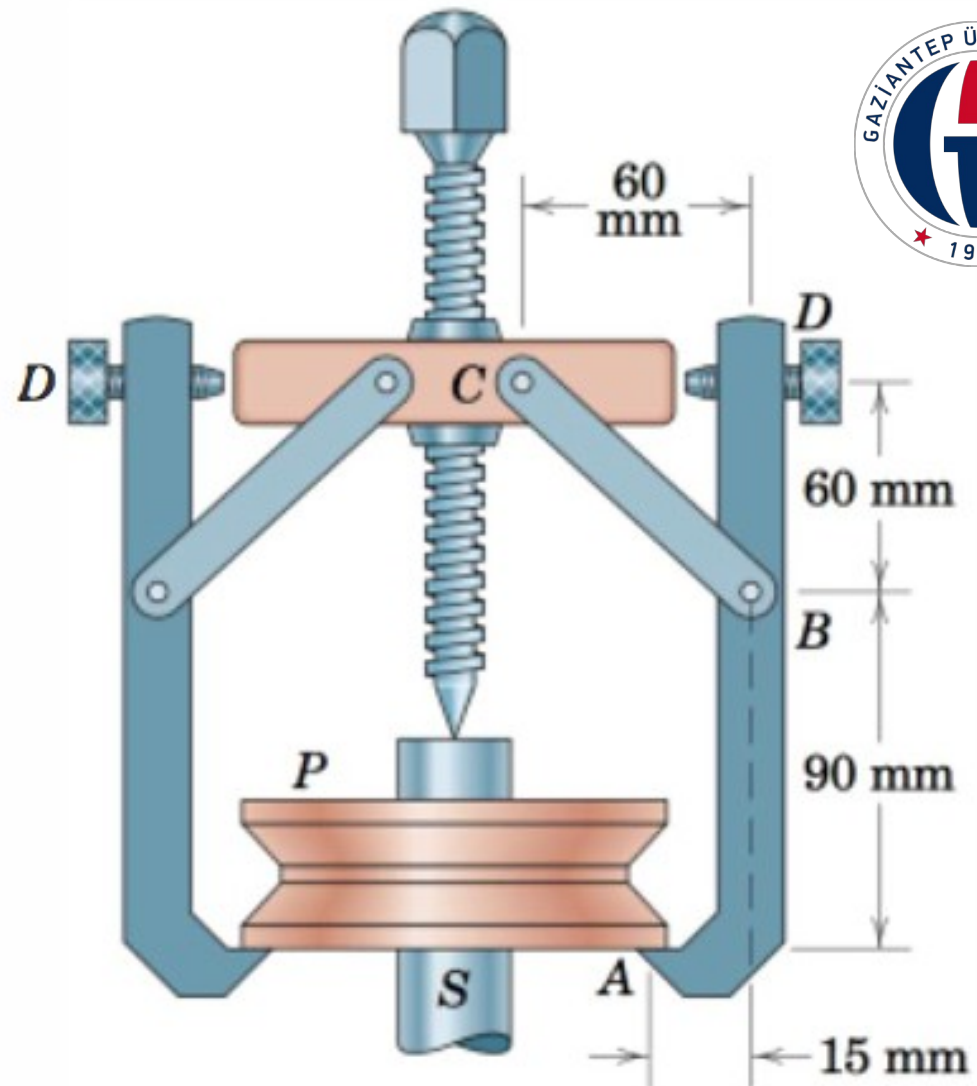
PROBLEM HOUR VII

FRAMES

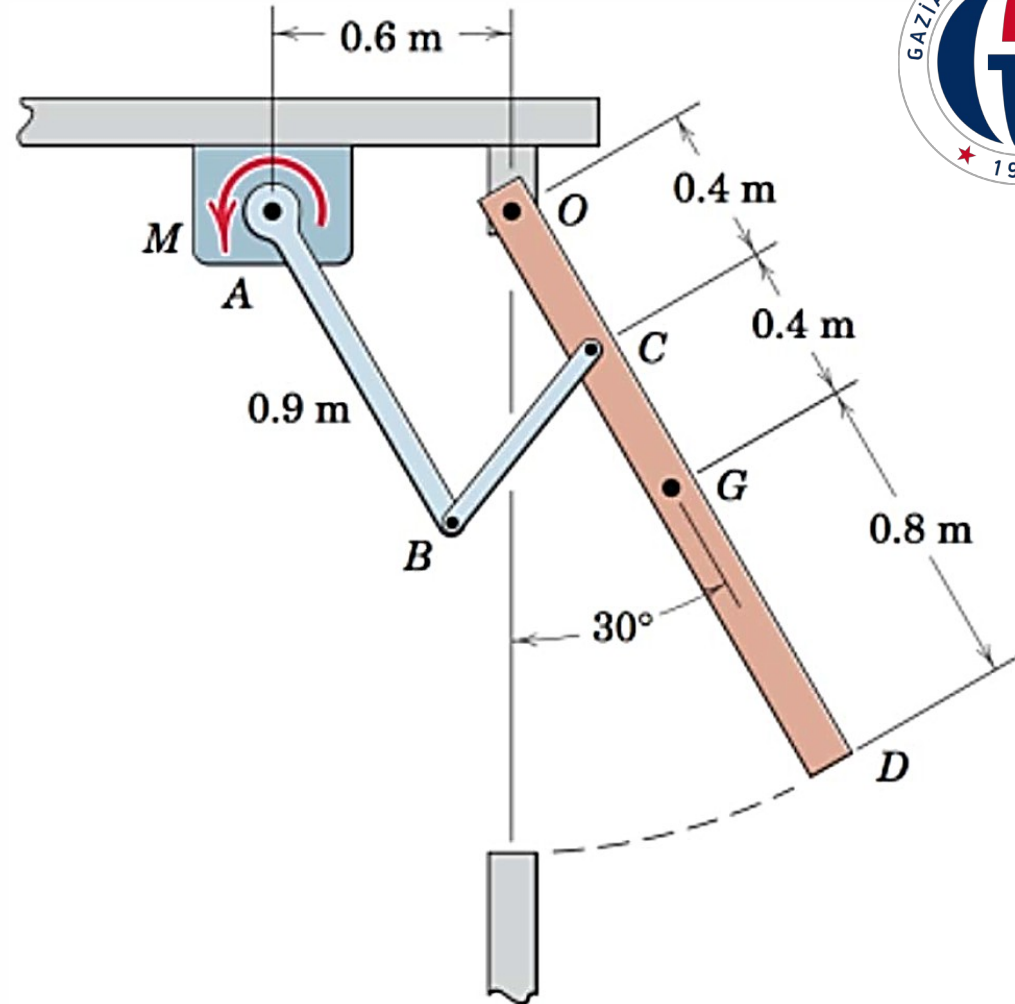
Q1) For a given gripping force P , determine the normal force exerted on the small round stock by each jaw of the compound pliers. State any assumptions.



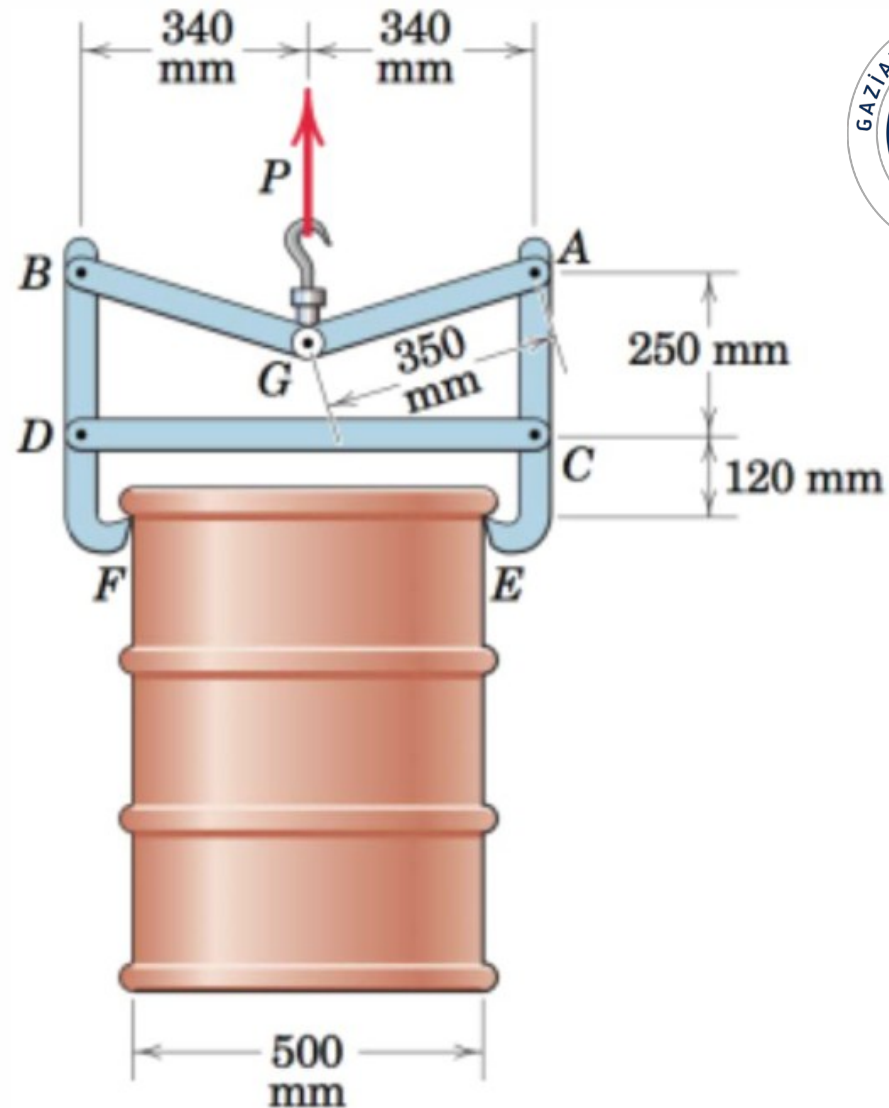
Q2) The figure shows a wheel puller which is designed to remove a V-belt pulley P from its tight-fitting shaft S by tightening of the central screw. If the pulley starts to slide off the shaft when the compression in the screw has reached 1.2 kN, calculate the magnitude of the force supported by each jaw at A . The adjusting screws D support horizontal force and keep the side arms parallel with the central screw.



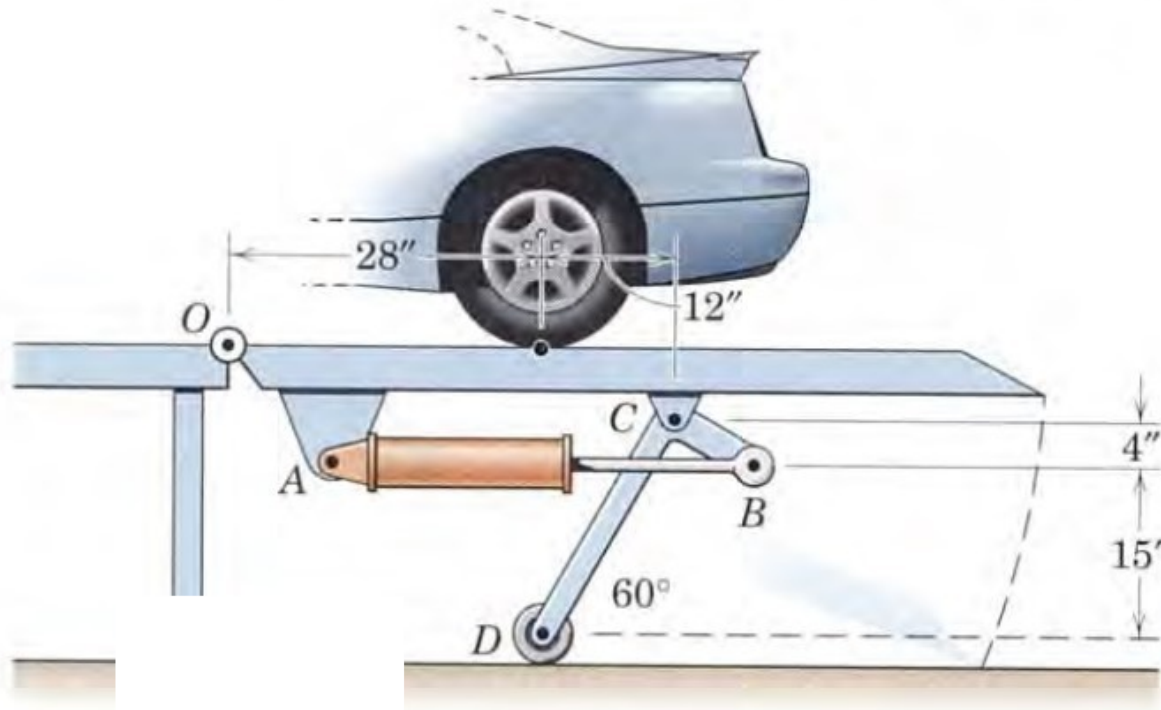
Q3) The 80-kg ventilation door OD with mass center at G is held in the open position shown by means of a moment M applied at A to the opening linkage. Member AB is parallel to the door for the 30° position shown. Determine M .



Q4) A lifting device for transporting 135-kg steel drums is shown. Calculate the magnitude of the force exerted on the drum at E and F .



Q5) The car hoist allows the car to be driven onto the platform, after which the rear wheels are raised. If the loading from both rear wheels is 1500 lb, determine the force in the hydraulic cylinder AB . Neglect the weight of the platform itself. Member BCD is a right-angle bell crank pinned to the ramp at C .



Q6) Determine the magnitude of the pin reaction at A and the magnitude and direction of the force reaction at the rollers. The pulleys at C and D are small.

