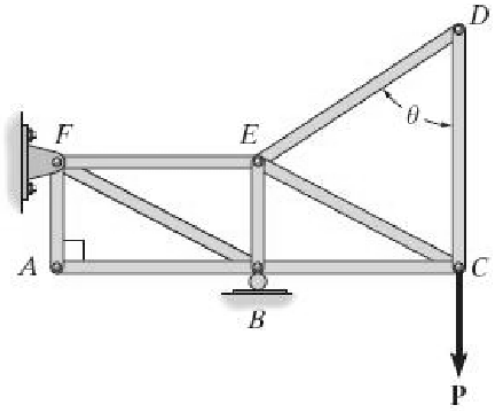
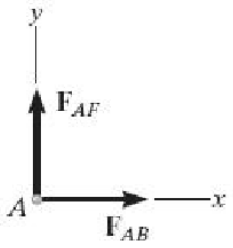


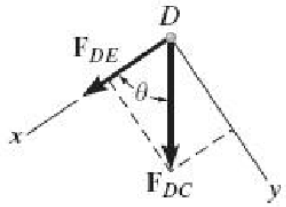
(a)



$\overset{+}{\rightarrow} \Sigma F_x = 0;\ F_{AB} = 0$

$+\uparrow \Sigma F_y = 0;\ F_{AF} = 0$

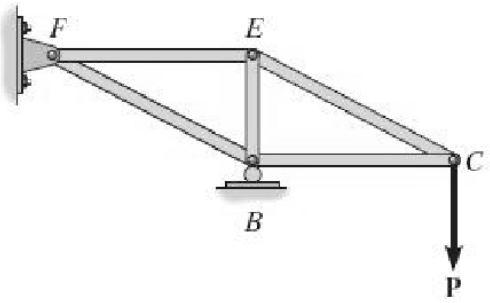
(b)



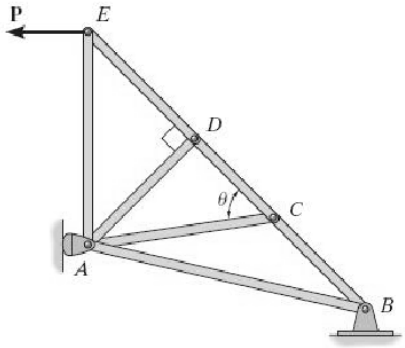
$+\searrow \Sigma F_y = 0; F_{DC} \sin\theta = 0;\ \ F_{DC} = 0 \text{ since } \sin\theta \neq 0$

$+\swarrow \Sigma F_x = 0; F_{DE} + 0 = 0;\ \ F_{DE} = 0$

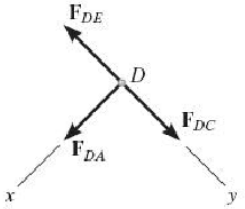
(c)



(d)



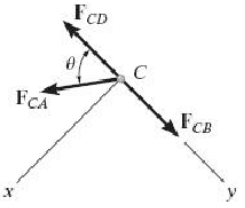
(a)



$+\swarrow \Sigma F_x = 0;\ \ F_{DA} = 0$

$+\searrow \Sigma F_y = 0;\ \ F_{DC} = F_{DE}$

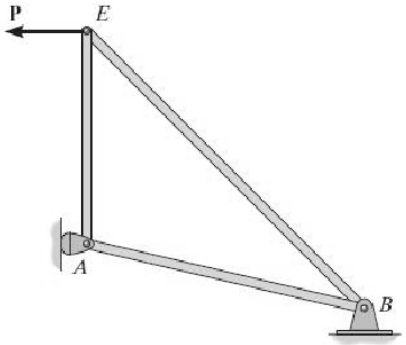
(b)



$+\swarrow \Sigma F_x = 0;\ \ F_{CA} \sin\theta = 0;\ \ F_{CA} = 0 \text{ since } \sin\theta \neq 0;$

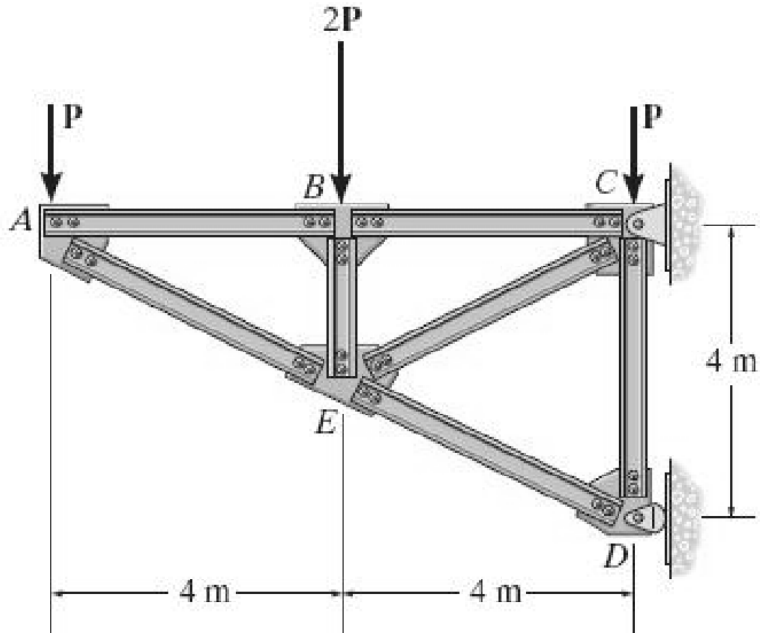
$+\searrow \Sigma F_y = 0;\ \ F_{CB} = F_{CD}$

(c)

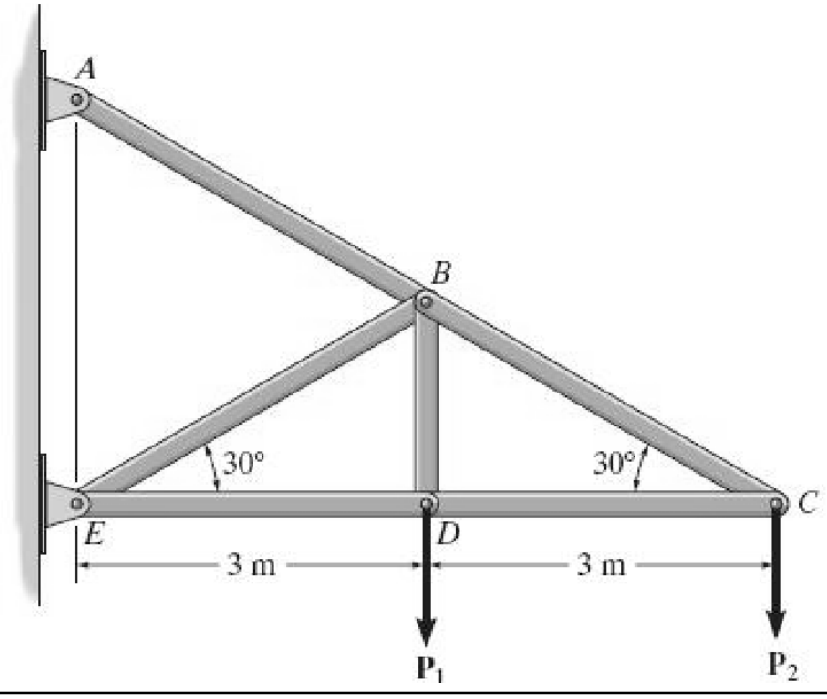


(d)

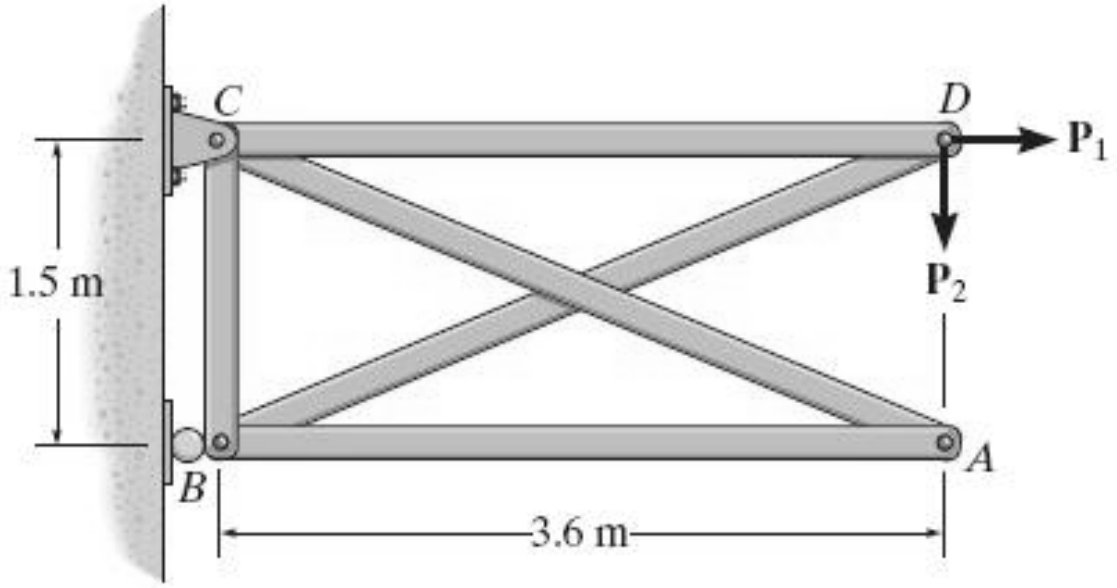
6-4. Determine the force in each member of the truss and state if the members are in tension or compression. Assume each real joint is idealized by pin joints. Set P = 4 kN.



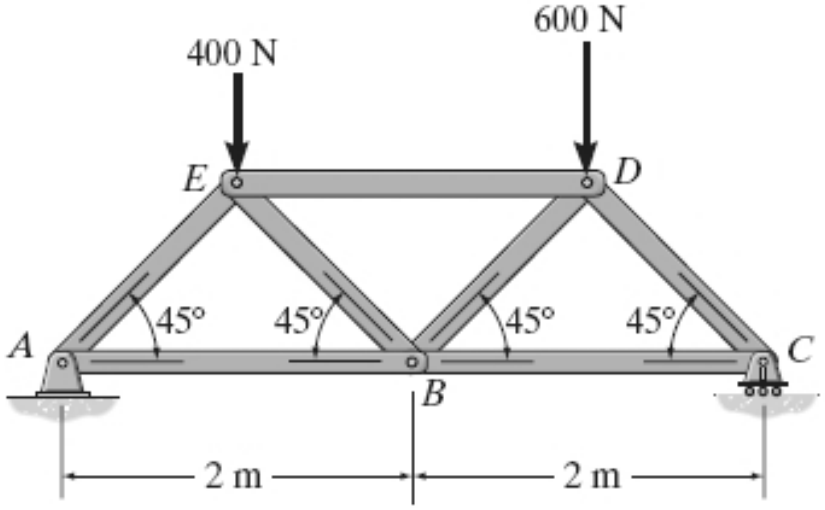
6-7. Determine the force in each member of the truss and state if the members are in tension or compression. Set $P_1 = P_2 = 4$ kN.



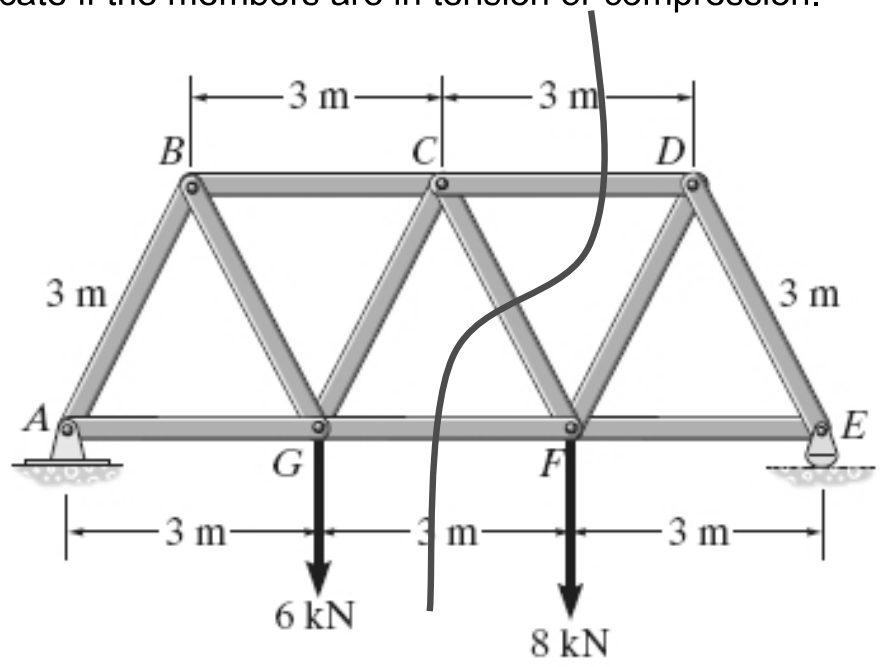
6-13. Determine the largest load P_2 that can be applied to the truss so that the force in any member does not exceed 2.5 kN tensile or 1.75 kN compressive. Take $P_1 = 0$.



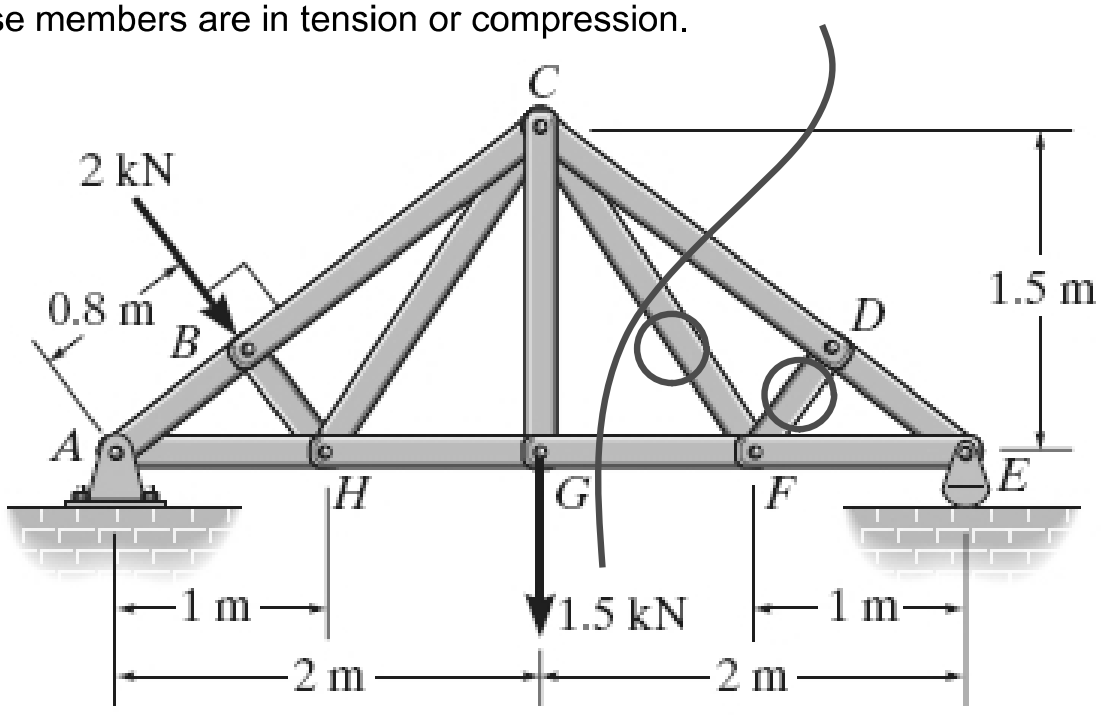
6-23. The truss is fabricated using uniform members having a mass of 5 kg/m. Remove the external forces from the truss and determine the force in each member due to the weight of the truss. State whether the members are in tension or compression. Assume the total force acting on one joint is the sum of half of the weight of every member connected to the joint.



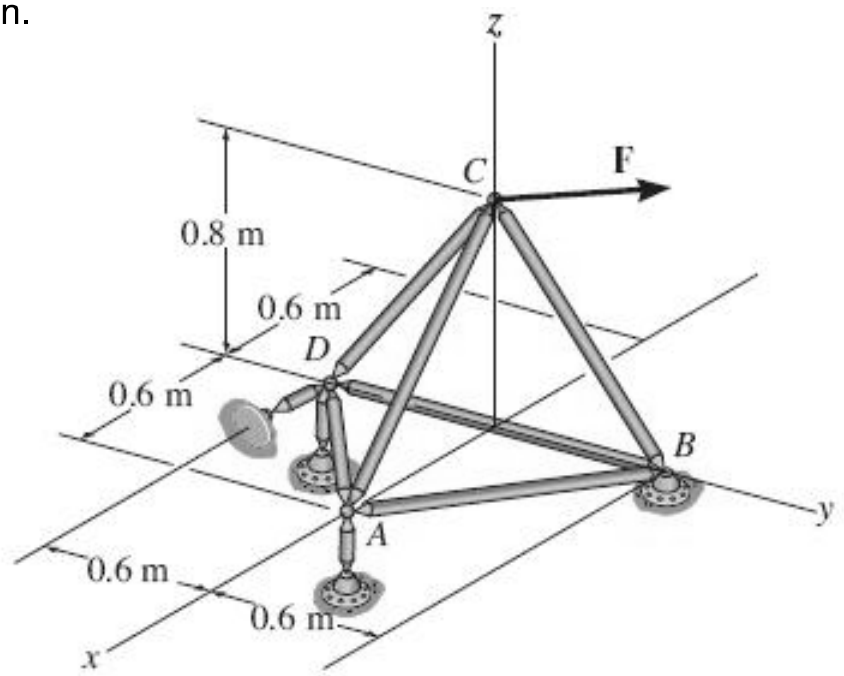
6-37. Determine the force in members CD, CF, and FG of the Warren truss. Indicate if the members are in tension or compression.



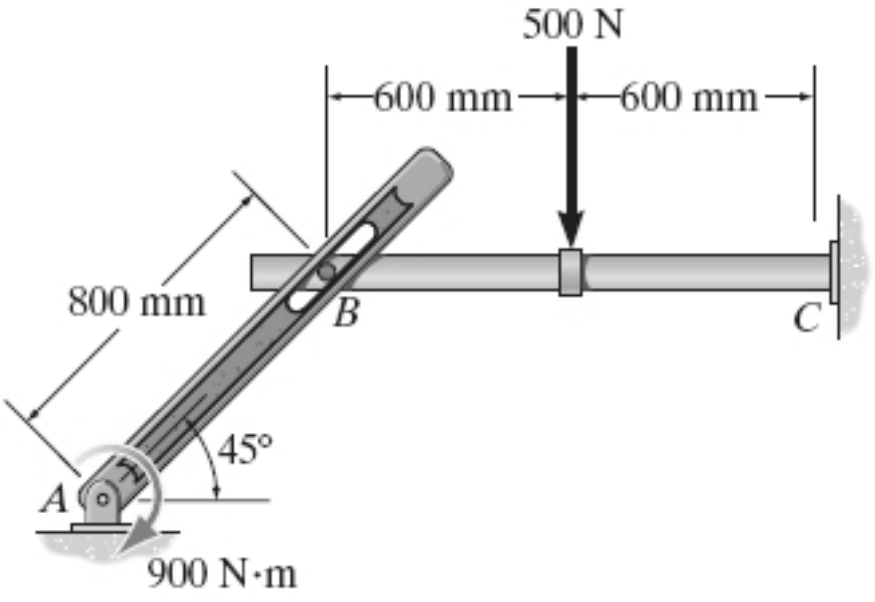
6-47. Determine the force in members CE and GF of the truss and state if these members are in tension or compression.



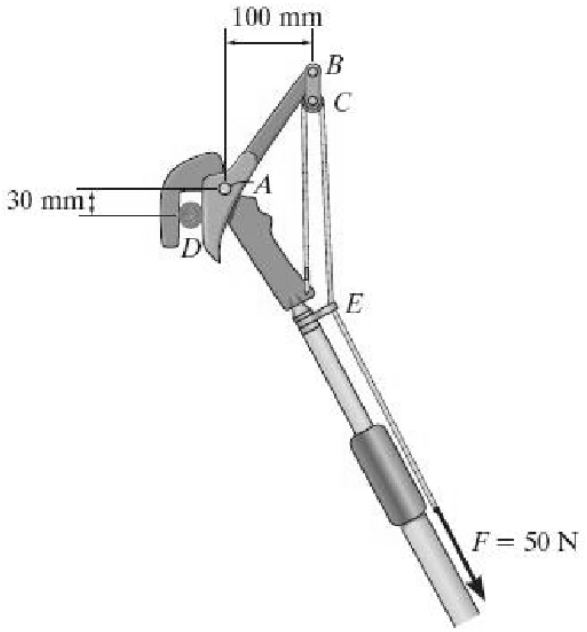
6-55. The space truss supports a force **F** = (600**i** + 450**j** – 750**k**)N. Determine the force in each member and state if the members are in tension or compression.



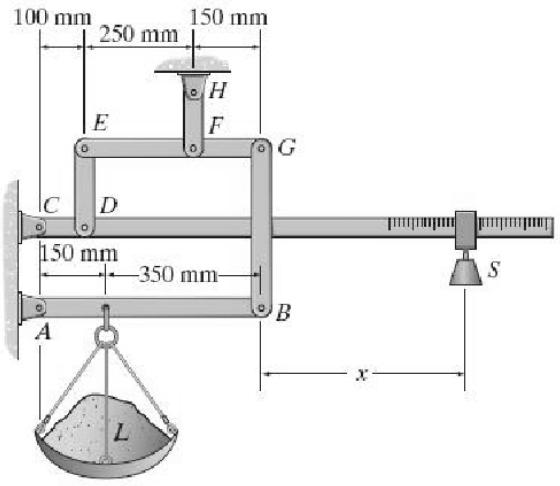
6-73. If the peg at B is smooth, determine the components of reaction at pin A and fixed support C.



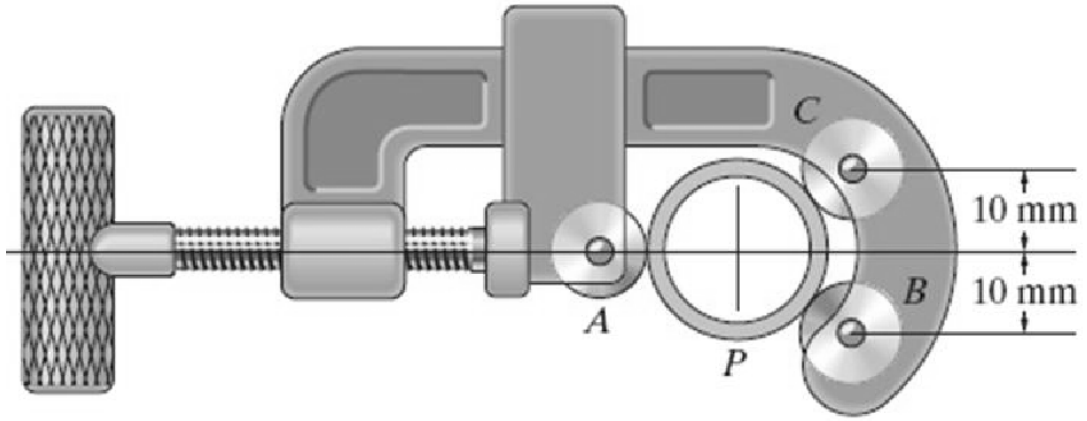
6-79. If a force of F = 50 N acts on the rope, determine the cutting force on the smooth tree limb at D and the horizontal and vertical components of force acting on pin A. The rope passes through a small pulley at C and a smooth ring at E.



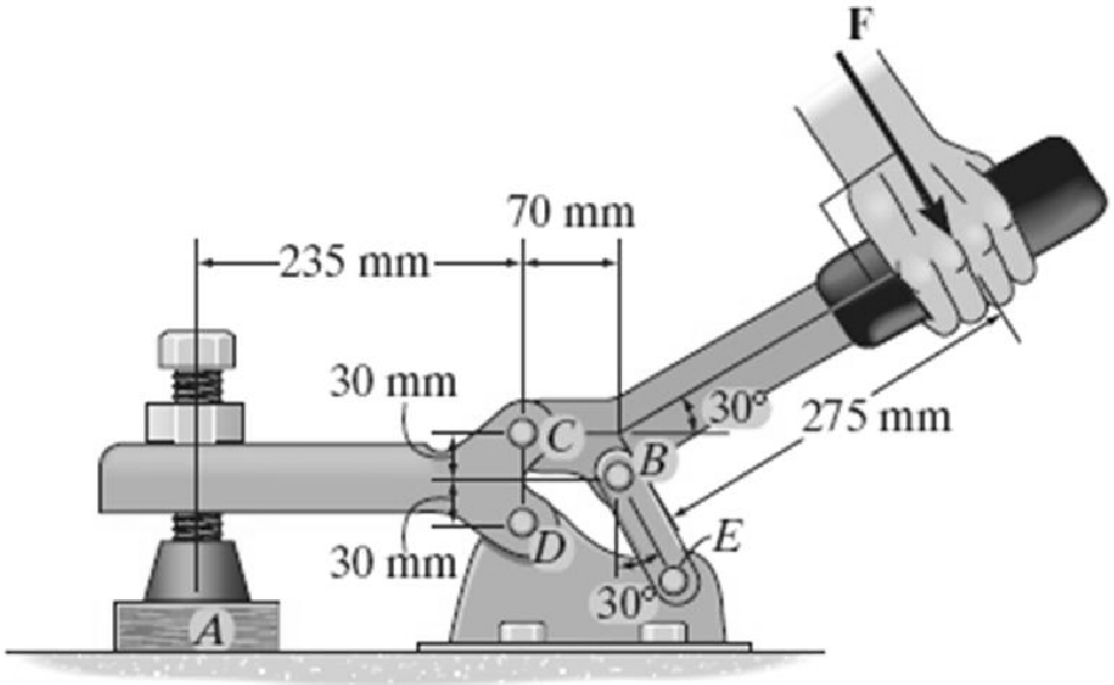
6-86. The platform scale consists of a combination of first and third class levers so that the load on one lever becomes the effort that moves the ext lever. Through this arrangement, a small weight can balance a massive object. If x = 450 mm and the mass of the counterweight, s, is 2 kg, determine the mass of the load L required to maintain the balance.



6-97. The pipe cutter is clamped around the pipe P. If the wheel at A exerts a normal force of F_A = 80 N on the pipe determine the normal forces of wheels B and C on the pipe. The tree wheels each have a radius of 7 mm and the pipe has an outer radius of 10 mm.



6-110. If a force of F = 350 N is applied to the handle of the toggle clamp, determine the resulting clamping force at A.



6-121. Determine the couple moment, M, that must be applied to member DC for equilibrium of the quick-return mechanism. Express the result in terms of the angles ϕ and θ, dimension L and the applied vertical force **P**. The block at C is confined to slide within the slot member AB.