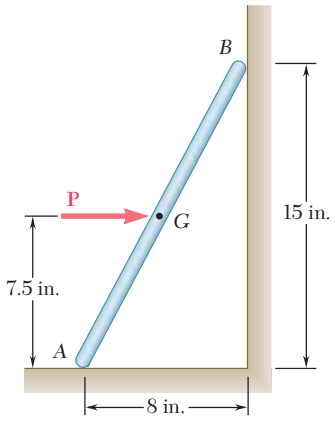

Fig. P4.91

4.90 Solve Prob. 4.89 assuming that the door is to be moved to the right.

4.91 The 10-lb uniform rod AB is held in the position shown by the force **P**. Knowing that the coefficient of friction is 0.20 at A and B, determine the smallest value of P for which equilibrium is maintained.

4.92 In Prob. 4.91, determine the largest value of **P** for which equilibrium is maintained.

4.93 The end A of a slender, uniform rod of length L and weight W bears on the horizontal surface, while its end B is supported by a cord BC. Knowing that the coefficients of friction are $\mu_s = 0.30$ and $\mu_k = 0.25$, determine (a) the maximum value of θ for which equilibrium is maintained, (b) the corresponding value of the tension in the cord.

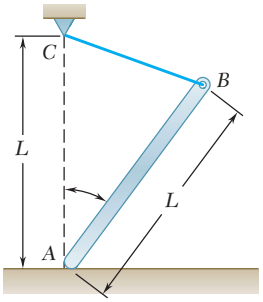

Fig. P4.93

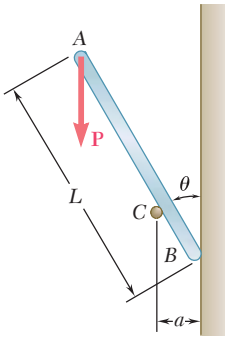

Fig. P4.95

4.94 Determine whether the rod of Prob. 4.93 is in equilibrium when $\theta = 30°$, and find the magnitude and direction of the friction force exerted on the rod at A.

4.95 A slender rod of length L is lodged between peg C and the vertical wall and supports a load **P** at end A. Knowing that $L = 12.5a$, $\theta = 30°$, and that the coefficients of friction are $\mu_s = 0.20$ and $\mu_k = 0.15$ at C and zero at B, determine whether the rod is in equilibrium.

4.96 Solve Prob. 4.95 assuming that $L = 6a$, $\theta = 30°$, and that the coefficients of friction are $\mu_s = 0.20$ and $\mu_k = 0.15$ at B and zero at C.

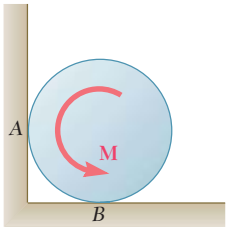

Fig. P4.97 and P4.98

4.97 Find the magnitude of the largest couple **M** that can be applied to the cylinder if it is not to spin. The cylinder has a weight W and a radius r, and the coefficient of static friction μ_s is the same at A and B.

4.98 The cylinder has a weight W and a radius r. Express in terms of W and r the magnitude of the largest couple **M** that can be applied to the cylinder if it is not to spin, assuming that the coefficient of static friction is to be (a) zero at A and 0.35 at B, (b) 0.28 at A and 0.35 at B.