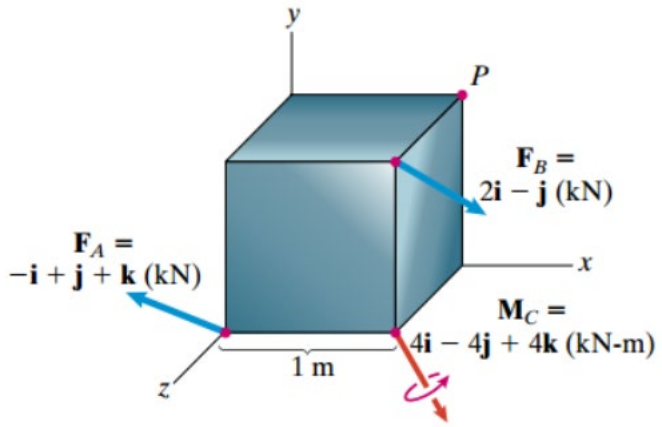
GEN_ENG 205-2: Engineering Analysis II Points – 60

Homework #5

Problem 1 (4.159)

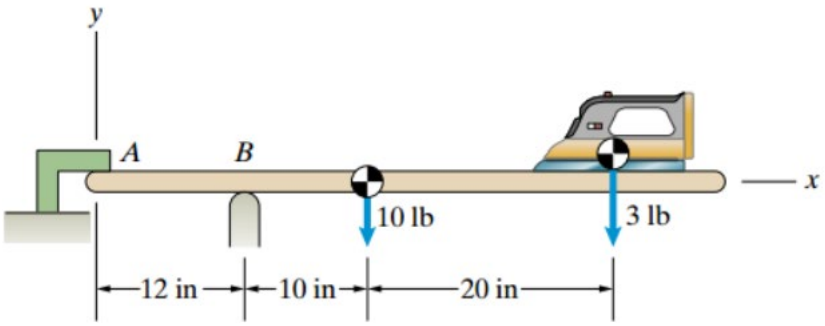
Two forces and a couple act on the cube. If you represent them by an equivalent force **F** acting at P and a couple moment **M**, what are **F** and **M**?



Problem 2 (5.7)

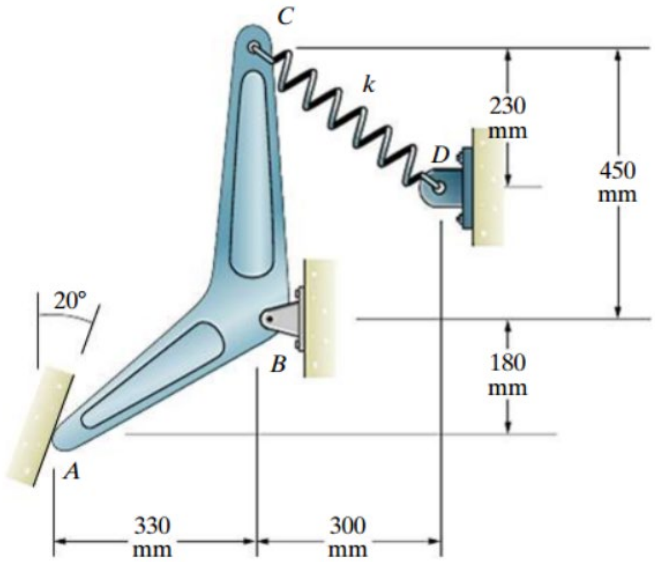
The ironing board has supports at A and B that can be modeled as roller supports.

(a) Draw the free-body diagram of the ironing board.
(b) Determine the reactions at A and B.



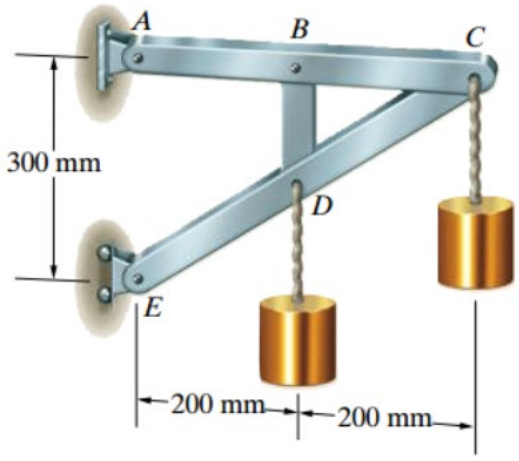
Problem 3 (5.20)

The unstretched length of the spring CD is 350 mm. Suppose that you want the lever ABC to exert a 120 N normal force on the smooth surface at A. Determine the necessary value of the spring constant k and the resulting reactions at B.



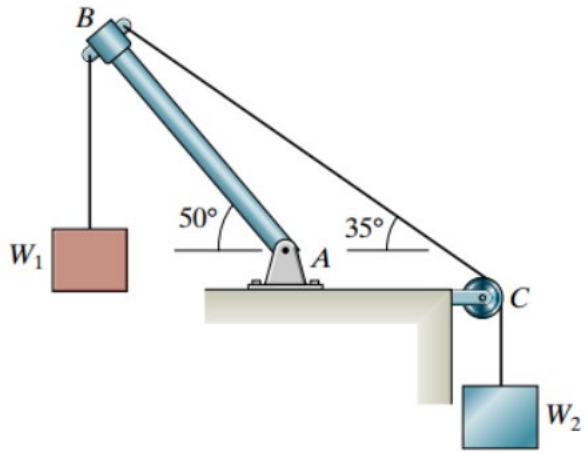
Problem 4 (5.47)

The suspended weights are each of mass *m*. The supports at A and E will each safely support a force of maximum magnitude equal to 6 kN. Based on this criterion, what is the largest value of *m* that can be sustained safely?



Problem 5 (5.60)

The weight $W_1 = 1000$ lb. Neglect the weight of the bar AB. The cable goes over a pulley at C. Determine the weight W_2 and the reactions at the pin support A.



Problem 6 (5.75)

State whether each of the L-shaped bars shown is properly or improperly supported. If a bar is properly supported, determine the reactions at its supports. (Hint: Follow the process of Example 5.6 in the book)