Prob. 1 (3.76)

Knowing that $P = 52.5$ lb, replace the three couples with a single equivalent couple, specifying its magnitude and the direction of its axis.

Prob. 2 (3.84)

A force and a couple are applied to a beam. (a) Replace this system with a single force $F$ applied at point $G$, and determine the distance $d$. (b) Solve part a assuming that the directions of the two 150-lb forces are reversed.

Prob. 3 (3.125)

The forces shown are the resultant downward loads on sections of the flat roof of a building because of accumulated snow. Determine the magnitude and the point of application of the resultant of these four loads.

Prob. 4 (3.153)

Three children are standing on a $15 \times 15$-ft raft. The weights of the children at points $A$, $B$, and $C$ are 85 lb, 60 lb, and 90 lb, respectively. If a fourth child of weight 95 lb climbs onto the raft, determine where she should stand if the other children remain in the positions shown and the line of action of the resultant of the four weights is to pass through the center of the raft.