

**FIGURE P12-5**

Problem 12-15

- †12-15 Figure P12-5 shows a system with two weights on a rotating shaft. $W_1 = 10 \text{ lb @ } 90^\circ$ at a 3-in radius and $W_2 = 15 \text{ lb @ } 240^\circ$ at a 3-in radius. Determine the magnitudes and angles of the balance weights needed to dynamically balance the system. The balance weights in planes 3 and 4 are placed at a 3-in radius.

† These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs.