



**FIGURE P6-29**

Problem 6-67

†6-67 Figure P6-29 shows a drum pedal mechanism.  $O_2A = 100$  mm at  $162^\circ$  and rotates to  $171^\circ$  at  $A'$ .  $O_2O_4 = 56$  mm,  $AB = 28$  mm,  $AP = 124$  mm, and  $O_4B = 64$  mm. The distance from  $O_4$  to  $F_{in}$  is 48 mm. Find and plot the mechanical advantage and the velocity ratio of the linkage over its range of motion. If the input velocity  $V_{in}$  is a constant magnitude of 3 m/sec, and  $F_{in}$  is constant at 50 N, find the output velocity and output force over the range of motion and the power in.

† These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs. In most cases, your solution can be checked with program FOURBAR..