



FIGURE P5-1

Data for Problems 5-8 to 5-11

- *†5-8 Design a linkage to carry the body in Figure P5-1 through the two positions P_1 and P_2 at the angles shown in the figure. Use analytical synthesis without regard for the fixed pivots shown. Hint: Try the free choice values $z = 1.075$, $\phi = 204.4^\circ$, $\beta_2 = -27^\circ$; $s = 1.24$, $\psi = 74^\circ$, $\gamma_2 = -40^\circ$.
- †5-9 Design a linkage to carry the body in Figure P5-1 through the two positions P_2 and P_3 at the angles shown in the figure. Use analytical synthesis without regard for the fixed pivots shown. Hint: First try a rough graphical solution to create realistic values for free choices.
- †5-10 Design a linkage to carry the body in Figure P5-1 through the three positions P_1 , P_2 , and P_3 at the angles shown in the figure. Use analytical synthesis without regard for the fixed pivots shown. Hint: Try the free choice values $\beta_2 = 30^\circ$, $\beta_3 = 60^\circ$; $\gamma_2 = -10^\circ$, $\gamma_3 = 25^\circ$.
- *†5-11 Design a linkage to carry the body in Figure P5-1 through the three positions P_1 , P_2 , and P_3 at the angles shown in the figure. Use analytical synthesis and design it for the fixed pivots shown.

* Answers in Appendix F.

† 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, SLIDER, or SIXBAR.