



FIGURE P7-1

Configuration and terminology for Problems 7-3, 7-4 and 7-11

- \*7-3 The link lengths, coupler point location, and the values of  $\theta_2$ ,  $\omega_2$ , and  $\alpha_2$  for the same fourbar linkages as used for position and velocity analysis in Chapters 4 and 6 are redefined in Table P7-1, which is the same as Table P6-1. The general linkage configuration and terminology are shown in Figure P7-1. For the row(s) assigned, draw the linkage to scale and graphically find the accelerations of points A and B. Then calculate  $\alpha_3$  and  $\alpha_4$  and the acceleration of point P.
- \*†7-4 Repeat problem 7-3 except solve by the analytical vector loop method of Section 7.3 (p. 334).
- †7-11 For the row(s) assigned in Table P7-1, find the angular jerk of links 3 and 4 and the linear jerk of the pin joint between links 3 and 4 (point B). Assume an angular jerk of zero on link 2. The linkage configuration and terminology are shown in Figure P7-1.

\* 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.

TABLE P7-1 Data for Problems 7-3 and 7-4

Row	Link 1	Link 2	Link 3	Link 4	$\theta_2$	$\omega_2$	$\alpha_2$	$R_{pa}$	$\delta_3$
a	6	2	7	9	30	10	0	6	30
b	7	9	3	8	85	-12	5	9	25
c	3	10	6	8	45	-15	-10	10	80
d	8	5	7	6	25	24	-4	5	45
e	8	5	8	6	75	-50	10	9	300
f	5	8	8	9	15	-45	50	10	120
g	6	8	8	9	25	100	18	4	300
h	20	10	10	10	50	-65	25	6	20
i	4	5	2	5	80	25	-25	9	80
j	20	10	5	10	33	25	-40	1	0
k	4	6	10	7	88	-80	30	10	330
l	9	7	10	7	60	-90	20	5	180
m	9	7	11	8	50	75	-5	10	90
n	9	7	11	6	120	15	-65	15	60