3. A planar representation of a group 1 spatial closed-loop mechanism with link a_{71} fixed to ground is shown in Figure 7.8.

(a) Assuming that all constant mechanism parameters are known and that the angle θ_7 is given as an input angle, explain how to solve for the angle θ_1. How many values for θ_1 can be found?

(b) Assuming that you have successfully solved for θ_1, explain how you would solve for the angle θ_4.

(c) Assuming that you have successfully solved for θ_1 and θ_4, explain how you would solve for the angle θ_5.

(d) Finally, assuming that you have successfully solved for θ_1, θ_4, and θ_5, explain how you would solve for the slider displacements S_2, S_3, and S_6.

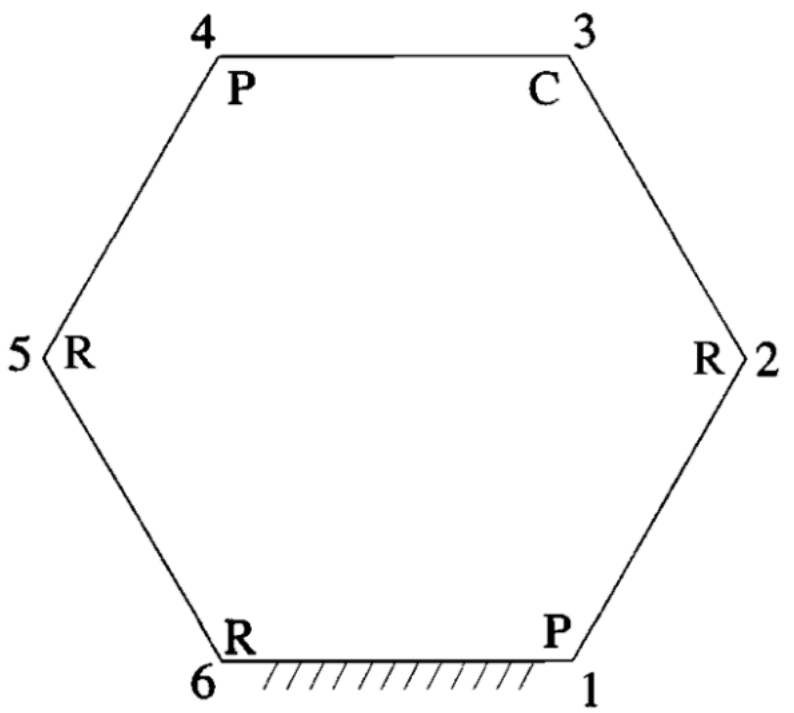

Figure 7.9. RRPCRP mechanism.