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Zoran Sunic* (sunic@math.tamu.edu). *Twin Towers of Hanoi: diameters of coupled graphs*. Preliminary report.

We use a group theoretic model of the Hanoi Towers Problem to solve a twin version of the problem. In the twin version, two sets of pegs and disks are considered simultaneously and two instances of the classical problem are being solved simultaneously, by using the same sequence of moves in both sets. We provide estimates on the length of optimal solutions to all Twin Towers of Hanoi Problems (for all initial and final configurations). The group behind the solution is a group of rooted tree automorphisms and the twin version of the problem corresponds to the action on pairs of vertices. (Received September 22, 2011)