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Kimberly Jordan Burch* (kjburgh@iup.edu), 206 Stright Hall, Department of Mathematics,
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The Tower of Hanoi is a puzzle familiar to many mathematicians. I introduced this puzzle in my undergraduate graph theory and combinatorics class. This puzzle helped students explore Hamiltonian cycles in n -cube graphs and to better understand recursion formulas. A child's stacking toy was used in lecture to demonstrate the legal moves used in solving the puzzle. The students used a penny, nickel, dime, and quarter at their desks with a piece of paper having three circles to serve as their poles. While studying graph theory, the students found a Hamiltonian cycle through the n -cube graph by keeping track of the moves used in solving the puzzle for n coins. The puzzle was also used when we discussed recursion formulas. By counting the number of moves needed to solve the puzzle for n coins, the students determined the recursion formula for the solution to the Tower of Hanoi problem for n coins. This hands-on approach to investigating recursion formulas helped to demystify the concept in an entertaining way. (Received August 03, 2005)