1023-D1-353   **Jenny Switkes*** (`jmswitkes@csupomona.edu`), 3801 W. Temple Ave., Pomona, CA 91768, and **Gordon Safely** and **Anh Tran**. *Discrete Approximation to a Steady-State Temperature Distribution.*

Systems of linear equations may be used to approximate the steady-state temperature distribution on a metal plate with edges held at prescribed temperatures. While the exact solution to the problem requires solution of Laplace's equation, the discrete approximation resulting from application of numerical techniques can be understood intuitively by students of all levels as an averaging of temperatures at nearest neighbor nodes; the result is a system of linear equations whose size depends on the node spacing. Students can also build an electrical circuit analog to the discrete approximation in order to obtain numerical approximations to the steady-state temperature problem by measuring voltages in the related circuit. (Received September 08, 2006)