

1035-11-1830      **Katherine E Stange\*** ([stange@math.brown.edu](mailto:stange@math.brown.edu)), Brown University Mathematics, Box 1917,  
Providence, RI 02912. *Elliptic Nets*.

Elliptic nets are  $n$ -dimensional arrays of numbers indexed by  $\mathbb{Z}^n$  which satisfy a certain recurrence relation. In particular, a finite set of initial terms generates the entire net via the relation. The one-dimensional case includes the integers, Lucas numbers (such as Fibonacci numbers) and elliptic divisibility sequences. Elliptic nets turn out to be intimately related to elliptic curves and their group law: a choice of curve and  $n$  points generates an  $n$ -dimensional elliptic net associated to the  $n$ -dimensional space of formal linear combinations of the  $n$  points. Nets can be used to calculate the group law. A quotient of terms in the net gives the Weil and Tate pairings of points. To a large extent, they form an alternative computational model for elliptic curves. (Received September 20, 2007)