1077-H1-505   **John Lorch*** (`jlorch@bsu.edu`), Department of Mathematical Sciences, Ball State University, Muncie, IN 47304. *Magic Squares and Sudoku.*

We introduce a family of magic squares, called linear magic squares, and show that any parallel linear sudoku solution of sufficiently large order can be relabeled so that all of its subsquares are linear magic. As a consequence we show that if $q > 3$ is a prime power then there exists a complete family of mutually orthogonal magic sudoku solutions of order q^2. We also discuss applications to orthogonal magic sudoku solutions of arbitrary square order. (Received September 06, 2011)