1023-15-366 **Elizabeth L Love*** (lle_17@hotmail.com), 2251 Sherman Ave, Washington, DC 20001, **Elizabeth A Wascher** (wasch1ea@cmich.edu), 3700 E Deerfield Rd, Lexington Ridge U12, Mt Pleasant, MI 48858, and **Michael Z Lee** (lee4m@cmich.edu), 1316 E Illinois Court, Mt Pleasant, MI 48858. *On Singular and Nonsingular Magic Squares.*

A *magic square* M is an n-by-n array of numbers whose rows, columns, and the two diagonals sum to μ called the magic sum. If all the diagonals including broken diagonals sum to μ then the magic square is said to be *pandiagonal*. A *regular* magic square satisfies the condition that the entries symmetrically placed with respect to the center sum to $\frac{2\mu}{n}$. If the entries of M are integers 1 through n^2 the magic sum μ is $\frac{n(n^2+1)}{2}$ and M is said to be a classical magic square.

In this work, we find vector space dimension of regular and pandiagonal magic squares. We give a simpler proof of the known result that even order regular magic squares are singular. We present matrix theoretic constructions that produce odd order regular magic squares that are singular and nonsingular. (Received September 08, 2006)