

Meeting: 1003, Atlanta, Georgia, MAA CP X1, MAA General Contributed Paper Session, I

1003-X1-386 **William P. Wardlaw*** (wpw@usna.edu), U. S. Naval Academy, Annapolis, MD 21402. *Good and Square Matrices are Invertible*. Preliminary report.

Let R be a commutative ring with 1. If $X = \langle x_1, x_2, \dots, x_n \rangle$ is any n -tuple of elements of R , let (X) denote the ideal generated by these elements. An $n \times p$ matrix A over R is (left) good if $(XA) = (X)$ for every n -tuple X with entries in R . (A good matrix preserves ideals.) It is shown that a matrix A is invertible over R if and only if A is good and A is square. (Received September 13, 2004)