

Math 216 Midterm 1 Study Guide

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Properties of matrices

- Some matrix A has the **existence property** if solutions must exist no matter what the constants on the right hand side are. A matrix has the existence property if:
 1. There are *no* rows of zero in $rref(A)$
 2. (Alternately) There is a pivot in every row of A
- Some matrix A has the **uniqueness property** if (possible) solutions must be unique. A has uniqueness if:
 1. There are no **free variables** in $rref(A)$
 2. (Alternately) There is a pivot in every column of A