

QUIZ

- ① NAME THE THREE ELEMENTARY ROW OPERATIONS.
- ② LIST THE PROPERTIES OF MATRICES IN ROW-ECHELON AND REDUCED ROW-ECHELON FORM.
- ③ A _____ OF LINEAR EQUATIONS WITH MORE UNKNOWN THAN EQUATIONS HAS INFINITELY MANY SOLUTIONS.
- ④ LET A BE $n \times m$ AND B BE $s \times t$. WHAT IS NECESSARY IN ORDER FOR $A+B$ TO BE DEFINED? WHAT IS NECESSARY IN ORDER FOR AB TO BE DEFINED? IF AB IS DEFINED, WHAT ARE ITS DIMENSIONS?
- ⑤ HOW DOES ONE CONSTRUCT A^T ?
- ⑥ WHAT IS THE TRACE OF A SQUARE MATRIX?
- ⑦ ASSUME THAT A IS INVERTIBLE:
 - i) WHAT IS THE INVERSE OF A^T ?
 - ii) IF $k \neq 0$, WHAT IS THE INVERSE OF kA ?
 - iii) IF B IS INVERTIBLE, WHAT IS $(AB)^{-1}$?
 - iv) WHAT IS WRONG WITH WRITING B/A ?
 - v) SOLVE FOR $B \rightarrow BA + C = 0$.
- ⑧ NAME AS MANY CONDITIONS AS YOU CAN THAT ARE EQUIVALENT TO "A IS INVERTIBLE".
- ⑨ IF $Ax = b$ IS CONSISTENT FOR EVERY $n \times 1$ MATRIX b , AND A IS SQUARE, WHY IS A INVERTIBLE?