

QUIZ September 3, 2013

Clicker Instructions: A = True; B = False;
C = I don't know; D = No truth value
correct = 1pt; don't know = 0pt; wrong = -1pt

1. The following matrix is in reduced echelon form:

$$\begin{bmatrix} 1 & -3 & 2 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

2. The pivot positions of a matrix are uniquely defined and for the matrix

$$\begin{bmatrix} 0 & 0 & 2 \\ 1 & 2 & 3 \\ 3 & 6 & 10 \end{bmatrix}, \quad \text{they are: } \begin{bmatrix} \cdot & \cdot & \blacksquare \\ \blacksquare & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{bmatrix}.$$

3. If a consistent system has two free variables, e.g. x and y , then any one choice for both, e.g. $(x, y) = (2, 3)$, determines a unique solution for the whole system.

4. Whenever a system has free variables, the solution set contains many solutions.
5. Back substitution on a matrix in echelon form is always a slower way to determine the solutions than continuing to find reduced echelon form.
6. The augmented matrices

$$\begin{bmatrix} \blacksquare & * & * & * & * \\ 0 & 0 & \blacksquare & * & * \\ 0 & 0 & 0 & 0 & \blacksquare \end{bmatrix}, \quad \begin{bmatrix} \blacksquare & * & * \\ 0 & \blacksquare & * \\ 0 & 0 & \blacksquare \end{bmatrix},$$

$$\text{and } \begin{bmatrix} \blacksquare & * & * & * & * \\ 0 & 0 & 0 & \blacksquare & * \\ 0 & 0 & 0 & 0 & \blacksquare \end{bmatrix},$$

represent systems with no solution, one solution and infinitely many solutions, respectively.