Math 237 – Linear Algebra

Fall 2017

Show all work. Answers without work will not receive credit. You may use a calculator, but you must show all relevant work to receive credit for a standard.

E2. Find RREF A, where

$$A = \begin{bmatrix} 2 & -1 & 5 & | & 4 \\ -1 & 0 & -2 & | & -1 \\ 1 & 3 & -1 & | & -5 \end{bmatrix}$$

Solution:

Version 1

RREF
$$A = \begin{bmatrix} 1 & 0 & 2 & 1 \\ 0 & 1 & -1 & -2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

Name:	

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Version 2

Show all work. Answers without work will not receive credit. You may use a calculator, but you must show all relevant work to receive credit for a standard.

E2. Find RREF A, where

$$A = \begin{bmatrix} 2 & -7 & | & 4 \\ 1 & -3 & | & 2 \\ 3 & 0 & | & 3 \end{bmatrix}$$

Solution:

$$\text{RREF}\, A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

Name:	

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E2. Find RREF A, where

$$A = \begin{bmatrix} 3 & -2 & 1 & 8 & | & -5 \\ 2 & 2 & 0 & 6 & | & -2 \\ -1 & 1 & 1 & -4 & | & 6 \end{bmatrix}$$

Solution:

Version 3

$$RREF A = \begin{bmatrix} 1 & 0 & 0 & 3 & | & -2 \\ 0 & 1 & 0 & 0 & | & 1 \\ 0 & 0 & 1 & -1 & | & 3 \end{bmatrix}$$

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E2. Find RREF A, where

$$A = \begin{bmatrix} 2 & 2 & 1 & 2 & | & -1 \\ 1 & 1 & 2 & 4 & | & 5 \\ 3 & 3 & -1 & -2 & | & 1 \end{bmatrix}$$

Solution:

Version 4

$$RREF A = \begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

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 ${\bf Math~237-Linear~Algebra}$

Version 5 Fall 2017

Show all work. Answers without work will not receive credit. You may use a calculator, but you must show all relevant work to receive credit for a standard.

E2. Find the reduced row echelon form of the matrix below.

$$\begin{bmatrix} 2 & 1 & -1 & 0 & 5 \\ 3 & -1 & 0 & -2 & 0 \\ -1 & 0 & 5 & 0 & -1 \end{bmatrix}$$

Solution:

$$\begin{bmatrix} 2 & 1 & -1 & 0 & | & 5 \\ 3 & -1 & 0 & -2 & | & 0 \\ -1 & 0 & 5 & 0 & | & -1 \end{bmatrix} \sim \begin{bmatrix} -1 & 0 & 5 & 0 & | & -1 \\ 2 & 1 & -1 & 0 & | & 5 \\ 3 & -1 & 0 & -2 & | & 0 \end{bmatrix} \sim \begin{bmatrix} 1 & 0 & -5 & 0 & | & 1 \\ 2 & 1 & -1 & 0 & | & 5 \\ 3 & -1 & 0 & -2 & | & 0 \end{bmatrix} \sim \begin{bmatrix} 1 & 0 & -5 & 0 & | & 1 \\ 0 & 1 & 9 & 0 & | & 3 \\ 0 & -1 & 15 & -2 & | & -3 \end{bmatrix} \sim \begin{bmatrix} 1 & 0 & -5 & 0 & | & 1 \\ 0 & 1 & 9 & 0 & | & 3 \\ 0 & 0 & 2 & | & 0 \end{bmatrix}$$

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Version 6

Show all work. Answers without work will not receive credit. You may use a calculator, but you must show all relevant work to receive credit for a standard.

E2. Find RREF A, where

$$A = \begin{bmatrix} 2 & -1 & 5 & | & 4 \\ -1 & 0 & -2 & | & -1 \\ 1 & 3 & -1 & | & -5 \end{bmatrix}$$

Solution:

RREF
$$A = \begin{bmatrix} 1 & 0 & 2 & 1 \\ 0 & 1 & -1 & -2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$