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| Name: |
| J#:   |
| Date: |

Dr. Clontz

## MASTERY QUIZ DAY 26

Math 237 – Linear Algebra

### Version 1

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.

|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
|---------------------|-------|
| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} 3 & -1 & 0 \\ 2 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$  is invertible.

|                     |       |
|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
|---------------------|-------|

Find the inverse of the matrix  $\begin{bmatrix} 3 & -1 & 0 \\ 2 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$ .

|                               |  |
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| <b>Additional Notes/Marks</b> |  |
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Math 237 – Linear Algebra

### Version 2

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|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
|---------------------|-------|
| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} 2 & 1 & 0 & 3 \\ 1 & -1 & 3 & 1 \\ 3 & 2 & -1 & 7 \\ 4 & 1 & 2 & 0 \end{bmatrix}$  is invertible.

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|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
|---------------------|-------|

Find the inverse of the matrix  $\begin{bmatrix} 4 & -1 & -8 \\ 2 & 1 & 3 \\ 1 & 1 & 4 \end{bmatrix}$ .

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| <b>Additional Notes/Marks</b> |  |
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# MASTERY QUIZ DAY 26

Math 237 – Linear Algebra

## Version 3

Fall 2017

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|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
|---------------------|-------|
| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} -3 & 1 & 0 \\ -8 & 2 & -1 \\ 0 & 2 & 3 \end{bmatrix}$  is invertible.

|                     |       |
|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
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Compute the inverse of the matrix
 
$$\begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & -1 & 4 & -2 \\ 0 & 0 & 1 & 3 \\ 0 & 0 & 0 & 1 \end{bmatrix}.$$

|                               |  |
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| <b>Additional Notes/Marks</b> |  |
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## MASTERY QUIZ DAY 26

Math 237 – Linear Algebra

### Version 4

Fall 2017

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|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

$$B = \begin{bmatrix} 3 & 1 & 0 \end{bmatrix}$$

$$C = \begin{bmatrix} 3 & -1 & 4 \\ 1 & 0 & 2 \end{bmatrix}$$

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
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| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} 3 & -1 & 0 & 4 \\ 2 & 1 & 1 & 1 \\ 0 & 1 & 1 & -1 \\ 1 & -2 & 0 & 3 \end{bmatrix}$  is invertible.

|                     |       |
|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
|---------------------|-------|

Find the inverse of the matrix  $\begin{bmatrix} 3 & 1 & 3 \\ 2 & -1 & -6 \\ 1 & 1 & 4 \end{bmatrix}$ .

|                               |  |
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| <b>Additional Notes/Marks</b> |  |
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Math 237 – Linear Algebra

## Version 5

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|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

$$B = \begin{bmatrix} 3 & 1 & 0 \end{bmatrix}$$

$$C = \begin{bmatrix} 0 & -1 & 4 \\ 1 & -1 & 2 \end{bmatrix}$$

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
|---------------------|-------|
| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} 2 & 1 & 0 & 3 \\ 1 & -1 & 3 & 1 \\ 3 & 2 & -1 & 7 \\ 4 & 1 & 2 & 0 \end{bmatrix}$  is invertible.

|                     |       |
|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
|---------------------|-------|

Compute the inverse of the matrix
 
$$\begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & -1 & 4 & -2 \\ 0 & 0 & 1 & 3 \\ 0 & 0 & 0 & 1 \end{bmatrix}.$$

|                               |  |
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| <b>Additional Notes/Marks</b> |  |
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Math 237 – Linear Algebra

## Version 6

Fall 2017

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|                     |       |
|---------------------|-------|
| <b>Standard M1.</b> | Mark: |
|---------------------|-------|

Let

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

Exactly one of the six products  $AB$ ,  $AC$ ,  $BA$ ,  $BC$ ,  $CA$ ,  $CB$  can be computed. Determine which one, and compute it.

|                     |       |
|---------------------|-------|
| <b>Standard M2.</b> | Mark: |
|---------------------|-------|

Determine if the matrix  $\begin{bmatrix} 2 & 1 & 0 & 3 \\ 1 & -1 & 0 & 1 \\ 3 & 2 & -1 & 7 \\ 4 & 1 & 2 & 0 \end{bmatrix}$  is invertible.

|                     |       |
|---------------------|-------|
| <b>Standard M3.</b> | Mark: |
|---------------------|-------|

Find the inverse of the matrix  $\begin{bmatrix} 8 & 5 & 3 & 0 \\ 3 & 2 & 1 & 1 \\ 5 & -3 & 1 & -2 \\ -1 & 2 & 0 & 1 \end{bmatrix}$ .

|                               |  |
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| <b>Additional Notes/Marks</b> |  |
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