Name:
J#:
Date:

Dr. Clontz

MASTERY QUIZ DAY 22 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^3\to\mathbb{R}$ be the linear transformation given by

$$T\left(\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}\right)=\begin{bmatrix}x_3+3x_1\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^3$ and $\mathbb{R}$.

Standard A2.	Mark:

Determine if $D:\mathbb{R}^{2\times 2}\to\mathbb{R}$ given by $D\left(\begin{bmatrix}a&b\\c&d\end{bmatrix}\right)=ad-bc$ is a linear transformation or not.

Standard M1.	Mark:

Let

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

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

Additional Notes/Marks	

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MASTERY QUIZ DAY 22 Math 237 – Linear Algebra
Version 2 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^3\to\mathbb{R}$ be the linear transformation given by

$$T\left(\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}\right)=\begin{bmatrix}x_2+3x_3\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^3$ and $\mathbb{R}$.

Standard A2.	Mark:

Determine if the map $T:\mathcal{P}^6\to\mathcal{P}^7$ given by $T(f)=xf(x)-f(1)$ is a linear transformation or not.

Standard M1.	Mark:

Let

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

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

Additional Notes/Marks	

Name:	
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MASTERY QUIZ DAY 22 Math 237 – Linear Algebra
Version 3 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^3\to\mathbb{R}$ be the linear transformation given by

$$T\left(\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}\right)=\begin{bmatrix}x_2+3x_3\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^3$ and $\mathbb{R}$.

Standard A2.	Mark:

Determine if the map $T:\mathcal{P}^3\to\mathcal{P}^4$ given by $T(f(x))=xf(x)-f(x)$ is a linear transformation or not.

Standard M1.	Mark:

Let

$$A = \begin{bmatrix} 1 & 3 & -1 \\ 0 & 0 & 7 \end{bmatrix} \qquad B = \begin{bmatrix} 0 & 1 & 7 & 7 \\ -1 & -2 & 0 & 4 \\ 0 & 0 & 1 & 5 \end{bmatrix} \qquad C = \begin{bmatrix} 3 \\ 1 \end{bmatrix}$$

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

Additional Notes/Marks	

Name:	
J#:	Dr. Clontz
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MASTERY QUIZ DAY 22 Math 237 – Linear Algebra
Version 4 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^3\to\mathbb{R}^4$ be the linear transformation given by

$$T\left(\begin{bmatrix}x\\y\\z\end{bmatrix}\right)=\begin{bmatrix}-3x+y\\-8x+2y-z\\7x+2y+3z\\0\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^3$ and $\mathbb{R}^4$.

Standard A2.	Mark:

Determine if $D:\mathbb{R}^{2\times 2}\to\mathbb{R}$ given by $D\left(\begin{bmatrix}a&b\\c&d\end{bmatrix}\right)=a-3c$ is a linear transformation or not.

Standard M1.	Mark:

Let

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

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

Additional Notes/Marks	

Name:	
J#:	Dr. Clontz
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MASTERY QUIZ DAY 22 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^3\to\mathbb{R}^4$ be the linear transformation given by

$$T\left(\begin{bmatrix}x\\y\\z\end{bmatrix}\right)=\begin{bmatrix}-3x+y\\-8x+2y-z\\2y+3z\\7x\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^3$ and $\mathbb{R}^4$.

Standard A2.	Mark:

Determine if $T:\mathbb{R}^2\to\mathbb{R}^2$ given by $T\left(\begin{bmatrix}x\\y\end{bmatrix}\right)=\begin{bmatrix}e^x\\e^y\end{bmatrix}$ is a linear transformation.

Standard M1.	Mark:

Let

$$A = \begin{bmatrix} 1 & 3 & -1 & -1 \\ 0 & 0 & 7 & 2 \end{bmatrix} \qquad B = \begin{bmatrix} 0 & 1 & 7 & 7 \\ -1 & -2 & 0 & 4 \\ 0 & 0 & 1 & 5 \end{bmatrix} \qquad C = \begin{bmatrix} 3 & 2 \\ 0 & 1 \\ -2 & -1 \end{bmatrix}$$

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

Additional Notes/Marks	

Name:	
J#:	Dr. Clontz
Date:	

MASTERY QUIZ DAY 22 Math 237 – Linear Algebra
Version 6 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.

Standard A1.	Mark:

Let $T:\mathbb{R}^4\to\mathbb{R}^2$ be the linear transformation given by

$$T\left(\begin{bmatrix}x_1\\x_2\\x_3\\x_4\end{bmatrix}\right)=\begin{bmatrix}x_1+3x_3\\3x_2-5x_3\end{bmatrix}.$$

Write the matrix for T with respect to the standard bases of $\mathbb{R}^4$ and $\mathbb{R}^2$.

Standard A2.	Mark:

Determine if $T:\mathbb{R}^2\to\mathbb{R}^2$ given by $T\left(\begin{bmatrix}x\\y\end{bmatrix}\right)=\begin{bmatrix}e^x\\e^y\end{bmatrix}$ is a linear transformation.

Standard M1.	Mark:

Let

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

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

Additional Notes/Marks	