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Date:	

Math 237 – Linear Algebra Fall 2017

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.

Does span
$$\left\{ \begin{bmatrix} 2\\-1\\4\\2\\1 \end{bmatrix}, \begin{bmatrix} -1\\3\\5\\2\\0 \end{bmatrix}, \begin{bmatrix} 1\\0\\5\\1\\-3 \end{bmatrix} \right\} = \mathbb{R}^5?$$

Standard V4.

Mark:

Let W be the set of all \mathbb{R}^3 vectors $\begin{bmatrix} x \\ y \\ z \end{bmatrix}$ satisfying x + y + z = 0 (this forms a plane). Determine if W is a subspace of \mathbb{R}^3 .

Standard S2.

Determine if the set $\left\{ \begin{bmatrix} 1 & -3 \\ 2 & 2 \end{bmatrix}, \begin{bmatrix} -1 & 4 \\ -1 & 1 \end{bmatrix}, \begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 0 & 3 \\ 3 & 9 \end{bmatrix} \right\}$ is a basis of $M_{2,2}$ or not.

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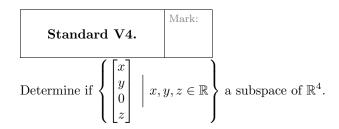
Version 2

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.

Standard V3.

Mark:
$$\begin{bmatrix} -3 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 5 \\ -1 \\ -2 \end{bmatrix}, \begin{bmatrix} 2 \\ 0 \\ -1 \end{bmatrix}, \text{ and } \begin{bmatrix} 0 \\ 2 \\ -1 \end{bmatrix} \text{ span } \mathbb{R}^3$$



Standard S2.

Mark:

Determine if the set $\left\{ \begin{bmatrix} 1\\1\\-1 \end{bmatrix}, \begin{bmatrix} 3\\-1\\1 \end{bmatrix}, \begin{bmatrix} 2\\0\\-2 \end{bmatrix} \right\}$ is a basis of \mathbb{R}^3

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Version 3

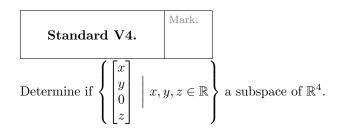
Math 237 – Linear Algebra Fall 2017

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.

Standard V3.

Mark:

$$\begin{bmatrix}
-3 \\
1 \\
1
\end{bmatrix}, \begin{bmatrix} 5 \\
-1 \\
-2
\end{bmatrix}, \begin{bmatrix} 2 \\
0 \\
-1
\end{bmatrix}, and \begin{bmatrix} 0 \\
2 \\
-1
\end{bmatrix} span $\mathbb{R}^3$$$



Standard S2.

Determine if the set $\left\{ \begin{bmatrix} 1 & -3 \\ 2 & 2 \end{bmatrix}, \begin{bmatrix} -1 & 4 \\ -1 & 1 \end{bmatrix}, \begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 0 & 3 \\ 3 & 9 \end{bmatrix} \right\}$ is a basis of $M_{2,2}$ or not.

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Version 4

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.

Standard V3.

Mark:

$$\begin{bmatrix} 1 \\ 0 \\ 2 \\ 1 \end{bmatrix}, \begin{bmatrix} 3 \\ 1 \\ 0 \\ -3 \end{bmatrix}, \begin{bmatrix} 0 \\ 3 \\ 0 \\ -2 \end{bmatrix}, \text{ and } \begin{bmatrix} -1 \\ 1 \\ -1 \\ -1 \end{bmatrix} \text{ span } \mathbb{R}^4.$$

	Mark:
Standard V4.	

Let W be the set of all polynomials of even degree. Determine if W is a subspace of the vector space of all polynomials.

Standard S2.

Mark:

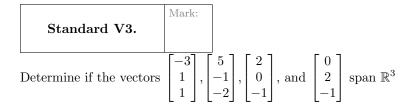
Determine if the set $\{x^2 + x - 1, 3x^2 - x + 1, 2x - 2\}$ is a basis of \mathcal{P}_2

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Math 237 – Linear Algebra Fall 2017

Version 5

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 V4.	Mark:

Let W be the set of all polynomials of the form $ax^3 + bx$. Determine if W is a subspace of \mathcal{P}^3 .

Standard S2.

Mark:

Determine if the set $\{x^3 - x, x^2 + x + 1, x^3 - x^2 + 2, 2x^2 - 1\}$ is a basis of \mathcal{P}_3

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Math 237 – Linear Algebra Fall 2017

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.

Standard V3.	Mark:		
Determine if the vectors	$ \begin{bmatrix} 8 \\ 21 \\ -7 \end{bmatrix}, $	$\begin{bmatrix} -3 \\ -8 \\ 3 \end{bmatrix}$, $\begin{bmatrix} -1 \\ -3 \\ 2 \end{bmatrix}$, and	$\begin{bmatrix} 4\\11\\-5 \end{bmatrix} \operatorname{span} \mathbb{R}^3.$

	Mark:
Standard V4.	

Let W be the set of all polynomials of even degree. Determine if W is a subspace of the vector space of all polynomials.

Standard S2.

Determine if the set $\left\{ \begin{bmatrix} 1 & -3 \\ 2 & 2 \end{bmatrix}, \begin{bmatrix} -1 & 4 \\ -1 & 1 \end{bmatrix}, \begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 0 & 3 \\ 3 & 9 \end{bmatrix} \right\}$ is a basis of $M_{2,2}$ or not.