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Date:	

Version 1

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:				
Determine if the vectors	$\begin{bmatrix} 1 \\ 1 \\ 2 \\ 1 \end{bmatrix}, \begin{bmatrix} 3 \\ 6 \\ 6 \\ 3 \end{bmatrix}$	$\begin{bmatrix} 3 \\ 3 \end{bmatrix}, \begin{bmatrix} -1 \\ 3 \\ 2 \end{bmatrix}$, and	$\begin{bmatrix} 7 \\ -1 \\ 8 \\ -3 \end{bmatrix}$	span \mathbb{R}^4 .

	Mark:
Standard V4.	

Determine if the set of all lattice points, i.e. $\{(x,y) \mid x \text{ and } y \text{ are integers}\}$ is a subspace of \mathbb{R}^2 .

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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Version 2

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Standard V3.	Mark:			
Determine if the vectors	$\begin{bmatrix} 2 \\ 0 \\ -2 \\ 0 \end{bmatrix},$	$\begin{bmatrix} 3 \\ 1 \\ 3 \\ 6 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \\ 1 \\ 1 \end{bmatrix}$, and	$\begin{bmatrix} 1 \\ 2 \\ 0 \\ 1 \end{bmatrix} \text{ span } \mathbb{R}^4.$

	Mark:
Standard V4.	

Determine if the set of all lattice points, i.e. $\{(x,y) \mid x \text{ and } y \text{ are integers}\}$ is a subspace of \mathbb{R}^2 .

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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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 V3.	Mark:		
Determine if the vectors	$\begin{bmatrix} 1 \\ 1 \\ 2 \\ 1 \end{bmatrix}, \begin{bmatrix} 3 \\ 3 \\ 6 \\ 3 \end{bmatrix}$	$\left \begin{array}{c} 3 \end{array} \right , \left \begin{array}{c} 3 \end{array} \right , \left \begin{array}{c} \text{and} \end{array} \right $	$\begin{bmatrix} 7 \\ -1 \\ 8 \\ -3 \end{bmatrix} \text{ span } \mathbb{R}^4.$

	Mark:
Standard V4.	

Determine if the set of all lattice points, i.e. $\{(x,y) \mid x \text{ and } y \text{ are integers}\}$ is a subspace of \mathbb{R}^2 .

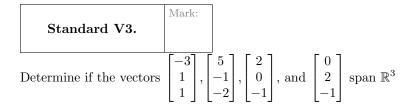
Determine if the set $\{x^2 + x - 1, 3x^2 - x + 1, 2x - 2\}$ is a basis of \mathcal{P}_2

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Version 4

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.



	Mark:
Standard V4.	

Let W be the set of all complex numbers that are purely real (i.e of the form a + 0i) or purely imaginary (i.e. of the form 0 + bi). Determine if W is a subspace of \mathbb{C} .

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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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 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	$\begin{bmatrix} 4\\11\\-5 \end{bmatrix} \text{ span } \mathbb{R}^3.$

	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.

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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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:

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

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 .

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