

Name:
J#:
Date:

Dr. Clontz

# MASTERY QUIZ DAY 20

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.

<b>Standard S3.</b>	Mark:
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Let  $W$  be the subspace of  $\mathcal{P}_2$  given by  $W = \text{span}(\{-3x^2 - 8x, x^2 + 2x + 2, -x + 3\})$ . Find a basis for  $W$ .

<b>Standard S4.</b>	Mark:
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Let  $W$  be the subspace of  $\mathcal{P}_3$  given by  $W = \text{span}(\{x^3 - x^2 + 3x - 3, 2x^3 + x + 1, 3x^3 - x^2 + 4x - 2, x^3 + x^2 + x - 7\})$ . Compute the dimension of  $W$ .

<b>Standard A1.</b>	Mark:
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Let  $T : \mathbb{R}^3 \rightarrow \mathbb{R}$  be the linear transformation given by

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

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

<b>Standard A2.</b>	Mark:
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Determine if the map  $T : \mathcal{P}^3 \rightarrow \mathcal{P}^4$  given by  $T(f(x)) = xf(x) - f(x)$  is a linear transformation or not.

<b>Additional Notes/Marks</b>	
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