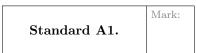
Name:	
J#:	Dr. Clontz
Date:	

MASTERY QUIZ DAY 22

Math 237 – Linear Algebra

Fall 2017

Version 2 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.



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} .

Solution:

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

Standard A2.

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.

	Mark:
Standard M1.	

Let

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

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

Solution: AC is the only one that can be computed, and

$$AC = \begin{bmatrix} 9 & -2 & 14 \\ 1 & 0 & 2 \end{bmatrix}$$

Additional Notes/Marks