Questin: Basis for Col (A)

$$A = 0 \quad X = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix}$$

$$A \longrightarrow \begin{bmatrix} 1 & 0 & -1 & 0 & 3 \\ 0 & 1 & 3 & 0 & 4 \\ 0 & 0 & 0 & 1 & -5 \\ 0 & 6 & 0 & 0 & 0 \end{bmatrix}$$

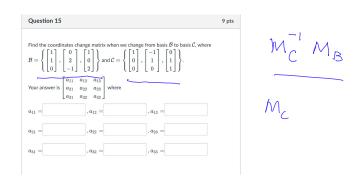
$$\begin{array}{lll}
x_1 & \equiv & x_3 - 3x_5 \\
x_2 & \equiv -3x_3 - 4x_5 \\
x_3 & \equiv 1x_3 + 0 \cdot x_5 \\
x_4 & \equiv 0 \cdot x_3 + 5 \cdot x_5 \\
x_5 & \equiv 0 \cdot x_3 + 1 \cdot x_5
\end{array}$$

$$\begin{array}{lll}
x_1 \\
x_2 \\
x_3 \\
x_4 \\
x_5
\end{array}$$

$$\begin{array}{lll}
x_1 \\
x_2 \\
x_3 \\
x_4 \\
x_5
\end{array}$$

$$\begin{array}{lll}
x_2 \\
x_3 \\
x_4 \\
x_5
\end{array}$$

$$\begin{array}{lll}
x_3 \\
x_4 \\
x_5
\end{array}$$



Question 10	6 pt
Let V be the vector space of all 3×3 matrices with real number subset of V that contains all 3×3 triangular matrices and H_2 contains all 3×3 matrices whose traces are integers. Choose all	be the subset of V that
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$\bigcap H_1$ is a subspace of V .	

$$\frac{1}{5} \begin{bmatrix} 1 & 0 & 1 \\ 0 & \frac{1}{2} & 0 \\ 0 & 5 & \frac{3}{2} \end{bmatrix} + \begin{bmatrix} \frac{1}{3} & \times \\ \times & \frac{2}{3} & 5 \end{bmatrix}$$

Question 9 Determine the values of k so that the vectors $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$, $\begin{bmatrix} k & 1 \\ 0 & 1 \end{bmatrix}$, $\begin{bmatrix} 2 & -2 \\ 0 & 3 \end{bmatrix}$ are linearly dependent. If your answer is a fraction, enter it as a fraction. $\begin{bmatrix} 2 \\ 3 \\ 0 \\ -1 \end{bmatrix} \begin{bmatrix} 1C \\ 1 \\ 0 \\ 1 \end{bmatrix} \begin{bmatrix} 2 \\ -2 \\ 0 \\ 3 \end{bmatrix}$

 $\begin{bmatrix} 2 \\ 3 \\ -1 \end{bmatrix}, \begin{bmatrix} K \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 2 \\ -2 \\ 3 \end{bmatrix}$

 $\det \begin{bmatrix} 2 & k & 2 \\ 3 & 1 & -2 \end{bmatrix} = 0 \quad \text{Solve for } k.$

Chapter 5: Problem 7
(1 point) Library/Rochester/setLinearAlgebra10Bases/ur_la_10_6.pg

The set $B=\{-\left(1+3x^2\right), \ -\left(3+2x+9x^2\right), \ -\left(8+4x+27x^2\right)\}$ is a basis for P_2 . Find the coordinates of $p(x)=9+4x+30x^2$ relative to this basis:

$$\mathcal{B} = \left\{ \begin{bmatrix} -1 \\ 0 \\ -3 \end{bmatrix}, \begin{bmatrix} -3 \\ -2 \\ -9 \end{bmatrix}, \begin{bmatrix} -8 \\ -4 \\ -27 \end{bmatrix} \right\}$$

$$\mathcal{M}_{\mathcal{B}} \cdot \mathcal{V} = \begin{bmatrix} -1 & -3 & -8 \\ 0 & -2 & -4 \\ -3 & -9 & -27 \end{bmatrix} \begin{bmatrix} 9 \\ 4 \\ 30 \end{bmatrix}$$

