Question 1 *Compute* $\mathbf{u}+\mathbf{v}$ *where* $\mathbf{u}=\begin{bmatrix}-1\\3\\-7\end{bmatrix}$ *and* $\mathbf{v}=\begin{bmatrix}2\\0\\4\end{bmatrix}$

$\mathbf{u}+\mathbf{v}=\begin{bmatrix}\boxed{1}\\\boxed{3}\\\boxed{-3}\end{bmatrix}$

Question 2 *Compute* $3\mathbf{u}-\mathbf{v}$ *where* $\mathbf{u}=\begin{bmatrix}0\\1\\-2\end{bmatrix}$ *and* $\mathbf{v}=\begin{bmatrix}-2\\6\\5\end{bmatrix}$

$3\mathbf{u}-\mathbf{v}=\begin{bmatrix}\boxed{2}\\\boxed{-3}\\\boxed{-11}\end{bmatrix}$

Question 3 *Write a vector equation equivalent to the system:*

$$\begin{cases} & & x_2 & + & x_3 & = -5 \\ -x_1 & - & 4x_2 & & & = 0 \\ x_1 & + & 9x_2 & + & 6x_3 & = 4 \end{cases}$$

$$x_1\begin{bmatrix}\boxed{1}\\\boxed{-1}\\\boxed{1}\end{bmatrix}+x_2\begin{bmatrix}\boxed{1}\\\boxed{-4}\\\boxed{9}\end{bmatrix}+x_3\begin{bmatrix}\boxed{1}\\\boxed{0}\\\boxed{6}\end{bmatrix}=\begin{bmatrix}\boxed{-5}\\\boxed{0}\\\boxed{4}\end{bmatrix}$$

Question 4 *Is* $\begin{bmatrix}-1\\5\end{bmatrix}$ *in* $\mathrm{Span}\left\{\begin{bmatrix}1\\0\end{bmatrix},\begin{bmatrix}0\\1\end{bmatrix}\right\}$*?*

Multiple Choice:

(a) *Yes* ✓

(b) *No*

Question 5 *Let* $\mathbf{v}_1=\begin{bmatrix}3\\6\\9\end{bmatrix}$ *and* $\mathbf{v}_2=\begin{bmatrix}2\\4\\8\end{bmatrix}$*. Is* $\mathrm{Span}\{\mathbf{v}_1,\mathbf{v}_2\}$ *a line or a plane?*

Multiple Choice:

(a) *line* ✓

(b) *plane*