1. **[5 points]** Find a value of x for which the following vectors are linearly **dependent**:

$$\begin{bmatrix} 5 \\ -1 \\ 2 \end{bmatrix}, \begin{bmatrix} 7 \\ -4 \\ 8 \end{bmatrix}, \begin{bmatrix} 1 \\ 5 \\ x \end{bmatrix}$$

2. **[2 points]** For that value of x, describe span $\left\{ \begin{bmatrix} 5 \\ -1 \\ 2 \end{bmatrix}, \begin{bmatrix} 7 \\ -4 \\ 8 \end{bmatrix}, \begin{bmatrix} 1 \\ 5 \\ x \end{bmatrix} \right\}$ geometrically.

3. **[3 points]** Find *all* values of x for which the following vectors are linearly **dependent**.

$$\begin{bmatrix} 1 \\ 0 \\ 7 \end{bmatrix}, \begin{bmatrix} 5 \\ -1 \\ 2 \end{bmatrix}, \begin{bmatrix} 7 \\ -4 \\ 8 \end{bmatrix}, \begin{bmatrix} 1 \\ 5 \\ x \end{bmatrix}$$