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1/13/16

given $\left\{ \begin{array}{l} \vec{u} = \begin{pmatrix} 2 \\ -1 \\ 0 \end{pmatrix} \quad \vec{v} = \begin{pmatrix} -1 \\ 2 \\ -1 \end{pmatrix} \quad \vec{w} = \begin{pmatrix} 0 \\ -1 \\ 2 \end{pmatrix} \quad \vec{b} = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} \\ c\vec{u} + d\vec{v} + e\vec{w} = \vec{b} \end{array} \right.$

$$c \begin{pmatrix} 2 \\ -1 \\ 0 \end{pmatrix} + d \begin{pmatrix} -1 \\ 2 \\ -1 \end{pmatrix} + e \begin{pmatrix} 0 \\ -1 \\ 2 \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}$$

$$\begin{pmatrix} 2c - d + 0 \\ -c + 2d - e \\ 0 - d + 2e \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}$$

$$\begin{cases} 2c - d = 1 \\ -c + 2d - e = 0 \\ -d + 2e = 0 \end{cases} \quad \text{Var. list} = c, d, e$$

$$\begin{cases} 2c - d = 1 \\ -\frac{3}{2}d - e = \frac{1}{2} \quad \text{combo}(1, 2, \frac{1}{2}) \\ -d + 2e = 0 \end{cases}$$

$$\begin{cases} 2c - d = 1 \\ d = \frac{1}{2} \quad \text{combo}(3, 2, \frac{1}{2}) \\ -d + 2e = 0 \end{cases}$$

$$\begin{cases} 2c = \frac{3}{2} \quad \text{combo}(2, 1, 1) \\ d = \frac{1}{2} \\ -d + 2e = 0 \end{cases}$$

$$\begin{cases} 2c = \frac{3}{2} \\ d = \frac{1}{2} \\ 2e = \frac{1}{2} \quad \text{combo}(2, 3, 1) \end{cases}$$

$$\begin{cases} c = \frac{3}{4} \quad \text{mult}(1, \frac{1}{2}) \\ d = \frac{1}{2} \\ 2e = \frac{1}{2} \end{cases}$$

$$\begin{cases} c = \frac{3}{4} \\ d = \frac{1}{2} \\ e = \frac{1}{4} \quad \text{mult}(3, \frac{1}{2}) \end{cases}$$

$$\begin{cases} c = \frac{3}{4} \\ d = \frac{1}{2} \\ e = \frac{1}{4} \end{cases}$$

Please! Answer
Clean.