代幾 I 計算演習 [問題] (2008/11/27)

問. 次の二組の基底の変換行列を求めなさい。

Q.1

$$E = < \begin{pmatrix} 2 \\ 1 \\ 1 \end{pmatrix}, \begin{pmatrix} 5 \\ 3 \\ 4 \end{pmatrix}, \begin{pmatrix} -2 \\ 0 \\ 1 \end{pmatrix} >$$

$$F = < \begin{pmatrix} -1 \\ -3 \\ -6 \end{pmatrix}, \begin{pmatrix} -3 \\ -3 \\ -5 \end{pmatrix}, \begin{pmatrix} -10 \\ -7 \\ -10 \end{pmatrix} >$$

Q.2

$$E = < \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}, \begin{pmatrix} 0 \\ -1 \\ -1 \end{pmatrix}, \begin{pmatrix} 1 \\ -1 \\ 0 \end{pmatrix} >$$

$$F = < \begin{pmatrix} 1 \\ -3 \\ -5 \end{pmatrix}, \begin{pmatrix} 0 \\ 2 \\ 3 \end{pmatrix}, \begin{pmatrix} 0 \\ -1 \\ -2 \end{pmatrix} >$$

Q.3

$$E = < \begin{pmatrix} 3 \\ -2 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 \\ 0 \\ 1 \end{pmatrix}, \begin{pmatrix} -2 \\ 1 \\ 0 \end{pmatrix} >$$

$$F = < \begin{pmatrix} -3 \\ 2 \\ 0 \end{pmatrix}, \begin{pmatrix} -2 \\ 2 \\ 1 \end{pmatrix}, \begin{pmatrix} 0 \\ 1 \\ 1 \end{pmatrix} >$$

Q.4

$$E = < \begin{pmatrix} 1 \\ -2 \\ 2 \end{pmatrix}, \begin{pmatrix} 3 \\ -1 \\ -1 \end{pmatrix}, \begin{pmatrix} 2 \\ -2 \\ 1 \end{pmatrix} >$$

$$F = < \begin{pmatrix} 13 \\ -11 \\ 4 \end{pmatrix}, \begin{pmatrix} 1 \\ -2 \\ 2 \end{pmatrix}, \begin{pmatrix} -28 \\ 24 \\ -9 \end{pmatrix} >$$

Q.5

$$E = < \begin{pmatrix} 1 \\ 0 \\ 1 \end{pmatrix}, \begin{pmatrix} 3 \\ -1 \\ 1 \end{pmatrix}, \begin{pmatrix} 5 \\ -2 \\ 2 \end{pmatrix} >$$

$$F = < \begin{pmatrix} -4 \\ 2 \\ -1 \end{pmatrix}, \begin{pmatrix} 8 \\ -3 \\ 3 \end{pmatrix}, \begin{pmatrix} -13 \\ 5 \\ -5 \end{pmatrix} >$$

Q.6

$$E = < \begin{pmatrix} -2 \\ 2 \\ -1 \end{pmatrix}, \begin{pmatrix} -2 \\ 3 \\ -2 \end{pmatrix}, \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} >$$

$$F = < \begin{pmatrix} -7 \\ 8 \\ -5 \end{pmatrix}, \begin{pmatrix} 3 \\ -3 \\ 2 \end{pmatrix}, \begin{pmatrix} 5 \\ -6 \\ 4 \end{pmatrix} >$$

Q.7

$$E = < \begin{pmatrix} 5 \\ -2 \\ 1 \end{pmatrix}, \begin{pmatrix} -3 \\ 1 \\ -1 \end{pmatrix}, \begin{pmatrix} 4 \\ -1 \\ 1 \end{pmatrix} >$$

$$F = < \begin{pmatrix} 16 \\ -5 \\ 4 \end{pmatrix}, \begin{pmatrix} 22 \\ -9 \\ 5 \end{pmatrix}, \begin{pmatrix} -7 \\ 1 \\ -2 \end{pmatrix} >$$

Q.8

$$E = < \begin{pmatrix} -1 \\ 0 \\ -1 \end{pmatrix}, \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix} >$$

$$F = < \begin{pmatrix} -1 \\ -1 \\ 0 \end{pmatrix}, \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} >$$

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A.1

$$\begin{pmatrix} 0 & 0 & -1 \\ -1 & -1 & -2 \\ -2 & -1 & -1 \end{pmatrix}$$

A.2

$$\begin{pmatrix} 3 & -1 & 1 \\ 8 & -4 & 3 \\ -2 & 1 & -1 \end{pmatrix}$$

A.3

$$\begin{pmatrix} -1 & -1 & -1 \\ 0 & 1 & 1 \\ 0 & 0 & -1 \end{pmatrix}$$

A.4

$$\begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & -2 \\ 5 & 0 & -11 \end{pmatrix}$$

A.5

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & -1 \\ -1 & 1 & -2 \end{pmatrix}$$

A.6

$$\begin{pmatrix} 2 & -1 & -1 \\ 1 & 0 & -1 \\ -1 & 1 & 1 \end{pmatrix}$$

A.7

$$\begin{pmatrix} 1 & 4 & 1 \\ -1 & -2 & 0 \\ 2 & -1 & -3 \end{pmatrix}$$

A.8

$$\begin{pmatrix} 0 & 0 & -1 \\ 0 & 1 & -1 \\ -1 & 0 & -1 \end{pmatrix}$$