Cefounek

1) $\alpha - \beta + \gamma = 0$

$\beta = 0$

$\alpha = 0$

$2\alpha + \gamma = 0$

$\alpha = \beta = \gamma = 0$

B_1 lin. nez.

2) $\vec{w}_1 = \begin{pmatrix} 5 \\ 0 \\ 2 \\ 7 \end{pmatrix}$ $\vec{w}_2 = \begin{pmatrix} 1 \\ 1 \\ 1 \\ 3 \end{pmatrix}$ $\vec{w}_3 = \begin{pmatrix} -2 \\ 2 \\ 1 \\ 1 \end{pmatrix}$

3) $5\alpha + \beta - 2\gamma = 0$ } ⊖

$\beta + 2\gamma = 0$

$2\alpha + \beta + \gamma = 0$

$7\alpha + 3\beta + \gamma = 0$ } ⊖

$5\alpha + 2\beta = 0$ } ⊖

$5\alpha + 4\beta = 0$

$2\beta = 0$

$\beta = 0 \rightarrow \alpha = 0 \rightarrow \gamma = 0$ B_2 lin. nez.

4) $\vec{w}_1 = \text{coord}_{B_1} \begin{pmatrix} 5 \\ 0 \\ 2 \\ 7 \end{pmatrix} = \begin{pmatrix} 2 \\ 0 \\ 3 \end{pmatrix}$, $\vec{w}_2 = \text{coord}_{B_1} \begin{pmatrix} 1 \\ 1 \\ 1 \\ 3 \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$, $\vec{w}_3 = \text{coord}_{B_1} \begin{pmatrix} -2 \\ 2 \\ 1 \\ 1 \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \\ -1 \end{pmatrix}$

5) $2\alpha + \beta + \gamma = 0$

$\beta + 2\gamma = 0 \rightarrow \beta = -2\gamma$

$3\alpha + \beta - \gamma = 0$

$2\alpha - \gamma = 0 \,/(-3)$ } ⊕

$3\alpha - 3\gamma = 0$

lin. nez.

$-3\alpha = 0 \rightarrow \alpha = 0, \beta = 0, \gamma = 0$

6) $\vec{t}_1 = \text{coord}_{B_2}(\vec{w}_1) = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}$

$\vec{t}_2 = \text{coord}_{B_2}(\vec{w}_2) = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}$

$\vec{t}_3 = \text{coord}_{B_2}(\vec{w}_3) = \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix}$

Cofaweb

7) a) ✓ $\dim(\pi_1) = 3$

b) ✓ $\dim(\pi_2) = 3$

c) ✓ $\dim(\pi_3) = 1$

d) ~~✗~~ ✓ $\dim(\pi_4) = 2$

e) ✓ $\dim(\pi_5) = 2$

f) ✓ $\dim(\pi_6) = 4$

8) $\text{coord}_{\pi_3}(\vec{x}) = \begin{pmatrix} 1 \\ 3 \\ 2 \end{pmatrix}$

9) a) 18

b) 4

c) $A \times B = \begin{pmatrix} 1 & 4 & 10 \\ 3 & 8 & 24 \end{pmatrix}$

$B \times C = \begin{pmatrix} 10 & 18 \\ 8 & 18 \end{pmatrix}$

$C \times B = \begin{pmatrix} 2 & 4 & 14 \\ 1 & 6 & 13 \\ 2 & 8 & 20 \end{pmatrix}$

$C \times A = \begin{pmatrix} 8 & 12 \\ 10 & 14 \\ 14 & 20 \end{pmatrix}$

10)