Soluzioni degli esercizi del 10/1/12

1

(A) $\frac{1}{12}\begin{pmatrix} -47 & -26 & -33 \\ -38 & -20 & -30 \\ 5 & 2 & 3 \end{pmatrix}$

(B) $t_1 = -\frac{5}{8}$, $t_2 = 3$

(C) $X = \mathrm{Span}(-3e_1 + 2e_2 + e_3)$, $Y = \{x \in \mathbb{R}^3 : \ 5x_1 + 14x_2 + 11x_3 = 0\}$

(D) $\frac{1}{24}\begin{pmatrix} 39 & 42 & 33 \\ -10 & -4 & -22 \\ -5 & -14 & 13 \end{pmatrix}$

2

(A) $t = -5$, $\mathrm{Span}(e_1 + 3e_2)$; $t = 1$, $\mathrm{Span}(e_1 + e_2)$

(B) $a_{11} + a_{12} + a_{21} = a_{21} + 3a_{22} = 0$

(C) $\begin{pmatrix} 29 & -11 \\ 69 & -26 \end{pmatrix}$

1bis

(A) $\frac{1}{5}\begin{pmatrix} -9 & 6 & -1 \\ -6 & 5 & -2 \\ -1 & 1 & 0 \end{pmatrix}$

(B) $t_1 = -2$, $t_2 = \frac{31}{12}$

(C) $X = \mathrm{Span}(-3e_1 + 2e_2 + e_3)$, $Y = \{x \in \mathbb{R}^3 : \ x_1 + 2x_2 + x_3 = 0\}$

(D) $\frac{1}{2}\begin{pmatrix} 5 & 6 & 3 \\ -2 & -2 & -2 \\ -1 & -2 & 1 \end{pmatrix}$

2bis

(A) $t = 6$, $\mathrm{Span}(e_1 + 4e_2)$; $t = -1$, $\mathrm{Span}(3e_1 + 5e_2)$

(B) $3a_{11} + 5a_{12} - 11a_{22} = a_{21} + 4a_{22} = 0$

(C) $\begin{pmatrix} 54 & -15 \\ 184 & -51 \end{pmatrix}$