(1338) $a_0 + a_1 t_1 = l_1$, $b_0 + b_1 t_2 = l_2$

$a_0 = (3, 1, 2, 1, 3)$ $\quad$ $b_0 = (2, 2, -1, -1, -1)$

$a_1 = (1, 0, 1, 1, 2)$ $\quad$ $b_1 = (2, 1, 0, 1, 1)$

$l_1 \cap l_2$ - ?

$x \in l_1 \cap l_2 \Rightarrow x \in l_1,\ x \in l_2$

$x = a_0 + a_1 t_1 = b_0 + b_1 t_2$

$$(a_1 \mid -b_1 \,\|\, b_0 - a_0) = \left(\begin{array}{cc|c} 1 & -2 & -1 \\ 0 & -1 & 1 \\ 1 & 0 & -3 \\ 1 & -1 & -2 \\ 2 & -1 & -4 \end{array}\right) \sim \left(\begin{array}{cc|c} 1 & 0 & -3 \\ 0 & -2 & 2 \\ 0 & -1 & 1 \\ 0 & -1 & 1 \\ 0 & -1 & 2 \end{array}\right) \sim$$

$$\sim \left(\begin{array}{cc|c} 1 & 0 & -3 \\ 0 & -1 & 2 \end{array}\right)$$

$$\boxed{\begin{array}{l} t_1 = -3 \\ t_2 = -2 \end{array}} \Rightarrow$$

$\Rightarrow l_1 \cap l_2 \neq \varnothing$

$l_1 \cap l_2 = \{x\}$

$x = a_0 - 3a_1 = b_0 - 2b_1 = (2, 2, -1, -1, -1) - 2(2, 1, 0, 1, 1) =$

$= (2, 2, -1, -1, -1) + (-4, -2, 0, -2, -2) =$

$= (-2, 0, -1, -3, -3).$

1328 $\quad R_n = L_1 \oplus L_2 \qquad \forall x \in R_n$

$x = x_1 + x_2 \qquad x_1 = (a_1, a_2, \dots, a_n)$

$x_2 = (b, b, \dots, b_n)$

$a_1 + a_2 + \dots + a_n = 0$

$a_1 + b = 1 \qquad a_2 + b = 0 \qquad a_n + b = 0$

$a_1 = 1 - b \qquad a_2 = -b \qquad a_n = -b$

$1 - b + (-b) \cdot (n-1) = 0$

$1 - b + b - b \cdot n = 0$

$b = \frac{1}{n}$

$\frac{n-1}{n} + \left(-\frac{1}{n} \cdot (n-1)\right) = \left(\frac{n-1}{n}\right) - \frac{(n-1)}{n} = 0$

$e_1 = \left(\frac{n-1}{n}, -\frac{1}{n}, \dots, -\frac{1}{n}\right) + \left(\frac{1}{n} \dots \frac{1}{n}\right)$

$e_2 = \left(-\frac{1}{n}, \frac{n-1}{n}, -\frac{1}{n}, \dots, -\frac{1}{n}\right) + \left(\frac{1}{n} \dots \frac{1}{n}\right)$

$e_n = \left(-\frac{1}{n}, \dots -\frac{1}{n}, \frac{n-1}{n}\right)$

Тому всі вектори виражаються через $L_1 \oplus L_2$

1332 $P = L + x_0$

$\forall x \in P : y = x_1 + x_0$

$\Theta \in L \Rightarrow x = \Theta + x_0 = x_0 \Rightarrow x_0 \in P$

$\forall y \in P : x_0 \to y + x_0 ; \quad x = x_1 + y + x_0 = (x_1 + y) + x_0 \Rightarrow x \in P$