#6. Ответ $\vec{r}_0\{-4;0\}$

$\frac{x+4}{6} = \frac{y}{-3}$ $M_0(-4;0)$ $\vec{s}\{6;-3\}$

$\vec{r} = \vec{r}_0 + \vec{s}t$

$L_1: -9x-2y=11$ $L_2: \frac{x-4}{-1} = \frac{y-5}{-1}$

$\begin{cases} -9x-2y=11 \\ 4-x=5-y \end{cases} \Leftrightarrow \begin{cases} -9x-2y=11 \\ 9x-9y=-9 \end{cases}$ $-11y=2$, $y=-\frac{2}{11}$, $x=\frac{-13}{11}$

Ответ. $[-1.19, -0.19]$

$A(4,0)$ $l \perp L$

$L: -5x-4y+2=0$ $A \in l$

$\vec{n}\{-5;-4\}$

$B(-1;-4) \in l$

$\begin{cases} 4a = c \\ -a-4b=c \end{cases}$

$c=1$: $a=\frac{1}{4}$ $-4b=\frac{5}{4} \Rightarrow b=-\frac{5}{16}$

$\frac{1}{4}x - \frac{5y}{16} = 1 \mid \cdot 16$

Ответ $4x-5y=16$ $\vec{a}\{-4,-13;-8\}$ $\vec{b}\{29,76,-138\}$

4) $[\vec{r}, -4\vec{i}-13\vec{j}-8\vec{k}] = 29\vec{i}+76\vec{j}-138\vec{k}$

$[[\vec{r}\,\vec{a}]\,\vec{b}] \neq 0$

$(\vec{a}\,\vec{b})\vec{r} - (\vec{a}\,\vec{r})\vec{b} = 0$

$\vec{r}\{x\ y\ z\}$

$\vec{r}\times\vec{a} = \begin{vmatrix} i & j & k \\ x & y & z \\ -4 & -13 & -8 \end{vmatrix} = \vec{i}(-8y+13z) - \vec{j}(-8x+4z) + \vec{k}(-13x+4y)$

$[\vec{r}\times\vec{a}]\times\vec{b} = \begin{vmatrix} i & j & k \\ 13z-8y & 4z-8x & 4y-13x \\ 29 & 76 & -138 \end{vmatrix} \neq$

$x=6$, $y=-15$, $z=-7$

$\begin{cases} 13z-8y=29 \\ 4z-8x=76 \Leftrightarrow z-2x=19 \\ 4y-13x=-138 \end{cases}$

$L_2: \vec{r}_2\times\vec{a}_2 = \begin{vmatrix} i & j & k \\ x & y & z \\ -6 & -2 & 1 \end{vmatrix} = \vec{i}(y+2z) - \vec{j}(x+6z) + \vec{k}(-2x+6y)$

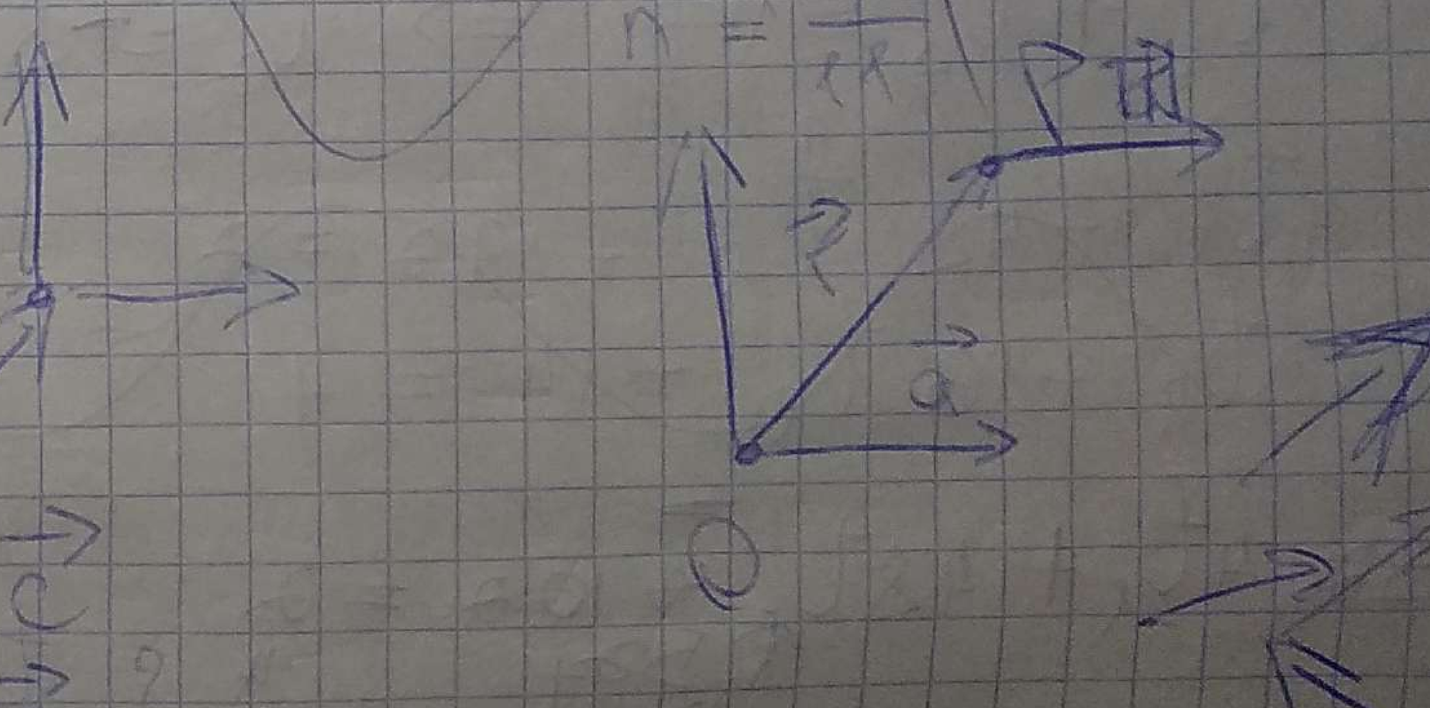
$\begin{cases} y+2z=0 \\ x+6z=+16 \\ -2x+6y=-32 \end{cases}$

$x=10$, $y=-4$, $z=1$

$\begin{cases} x=6n+4 \\ y=2n-4 \\ z=2-n \end{cases}$

$6n+4=4n+2$, $2n=-2$, $n=-1$

$13n-8=2n-4$, $11n=4$, $n=\frac{4}{11}$



$[\vec{a}\,\vec{b}] = \vec{c}$

$[\vec{b}\,\vec{c}] = \vec{a}$?

$$\begin{cases} x = 4n_1 + 2 \\ y = 13n_1 - 8 \\ z = 8n_1 - 15 \end{cases} \qquad \begin{cases} x = 6n_2 + 4 \\ y = 2n_2 - 4 \\ z = 2 - n_2 \end{cases}$$

$\vec{s_1}\{4; 13; 8\}$, $\vec{r_1}\{2; -8; -15\}$, $\vec{s_2}\{6; 2; -1\}$, $\vec{r_2}\{4; -4; 2\}$

$$\begin{cases} 4n_1 + 2 = 6n_2 + 4 \\ 13n_1 - 8 = 2n_2 - 4 \end{cases} \Leftrightarrow \begin{cases} 4n_1 + 2 = 6n_2 + 4 \\ 39n_1 - 24 = 6n_2 - 12 \end{cases}$$

$35n_1 - 26 = -16$

$n_1 = \frac{2}{7}$

$\frac{8}{7} + 2 = 6n_2 + 4$

$\frac{-6}{7 \cdot 6} = n_2 - \frac{19}{7} = \frac{16-35}{7} = \frac{16}{7} - 5 = -2 + \frac{1}{7} = \frac{15}{7}$

$x = \frac{8}{7} + 2 = \frac{22}{7} = \frac{-6}{7} + 4$

$y = -\frac{2}{7} - 4 = \frac{-30}{7}$

$z = -2 + \frac{1}{7} = \frac{15}{7}$

Не заметил, изломеная буква

$n_1 = t_1$

$n_2 = t_2$

$\vec{r_1} + \vec{s_1} t_1 = \vec{r_2} + \vec{s_2} t_2$

$\vec{s_1} t_1 - \vec{s_2} t_2 = \vec{r_2} - \vec{r_1}$

$$\begin{cases} 4t_1 - 6t_2 = 2 \\ 13t_1 + 2t_2 = 24 \\ 8t_1 + t_2 = 17 \end{cases} \Rightarrow t_2 = -8t_1 + 17$$

$$\begin{cases} 4t_1 - 48t_1 + 42 = 2 \\ 13t_1 + 16t_1 - 14 = 4 \end{cases} \Leftrightarrow \begin{cases} -44t_1 = 40 \\ 29t_1 = 18 \end{cases}$$

$t_1 = \frac{40}{44} = \frac{10}{11}$

$4t_1 + 48t_1 - 102 = 2$

$52t_1 = 104$

$t_1 = \frac{104}{52} = 2$

$t_2 = \frac{80}{44} - 17 = \frac{18}{11}$

---

⑤ $\begin{cases} 3(3a+4) = -12 \\ a^2 + 9a + 20 = -1 \cdot 6 \end{cases}$ $\quad 18a + 24 = -12 \quad 3a + 4 = -2 \quad a = -2$

$$\begin{cases} 3a = -26 \Rightarrow a = -\frac{26}{3} = -8\frac{2}{3} \\ a^2 + 9a + 26 = 0 \end{cases}$$

$D = 81 - 104 < 0$

$$\begin{cases} (3a+4)x - y + 5z = -4 \\ -12x + (a^2 + 9a + 20)y + 30z = 84 \end{cases}$$

$\varnothing$ спецзадка

$\Delta =$ $\quad$ $3a + 4 \quad -1$

$\vec{n_1}\{3a+4; -1; 5\}$

$\vec{n_2}\{-12; (a+4)(a+5); 30\}$

$\frac{3a+4}{-12} = \frac{-1}{(a+4)(a+5)} = \frac{1}{6}$

$$\begin{cases} -6 = a^2 + 9a + 20 \\ -12 = 6(3a+4) \end{cases} \quad \boxed{a = -2}$$

$t_1 = 2$

$t_2 = 1$

$x = 10$

$y = -2$

$z = 1$