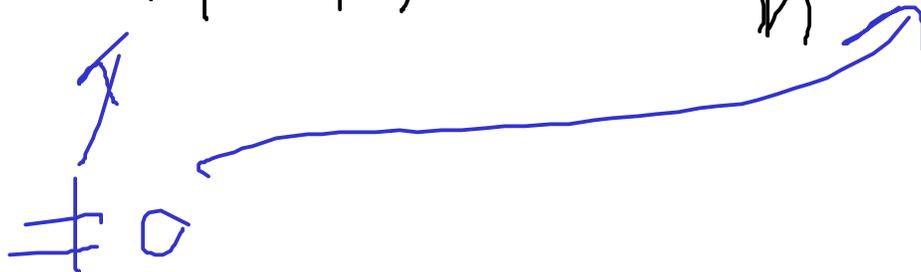


Ip. 7 scalari non tutti
nulli $\alpha_1, \dots, \alpha_h$ t.c.

$$\alpha_1 v_1 + \dots + \alpha_h v_h = \overline{0}_V$$

Sidno $v_i' = \alpha_i v_i, \dots, v_h' = \alpha_h v_h$



$\neq 0$

T. v_1', \dots, v_h' lin. dip.

DIM -

$$\beta_i = \frac{\alpha_i}{d_i}$$

So ho non tutti
nulli

$$\beta_1 v_1 + \dots + \beta_h v_h = 0$$

$$\frac{\alpha_1}{d_1} v_1 + \dots + \frac{\alpha_h}{d_h} v_h = 0$$

Sono in \mathbb{RP}^3 . Ho

i punti

$$A = [(1, 2, 3, 4)]$$

$$B = [(1, 0, 1, 0)]$$

Scrivere in forma
cartesiana la retta AB

Impochoo
8

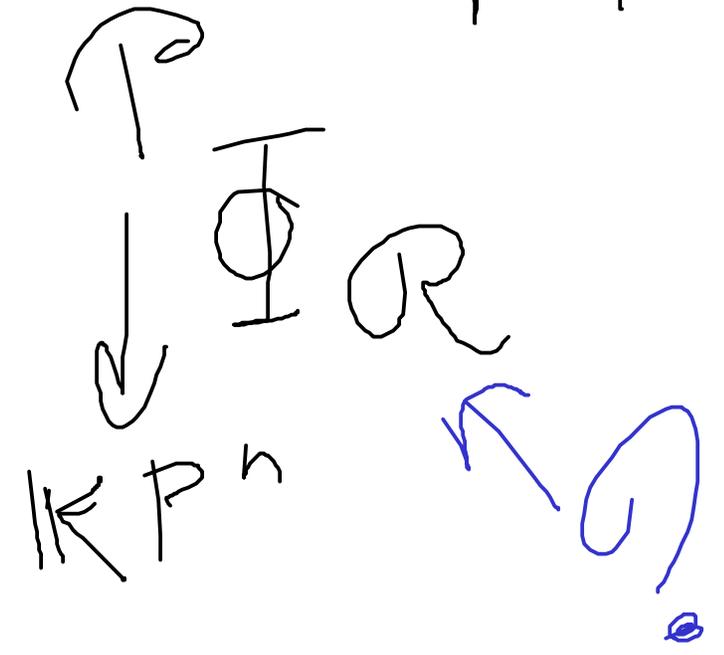
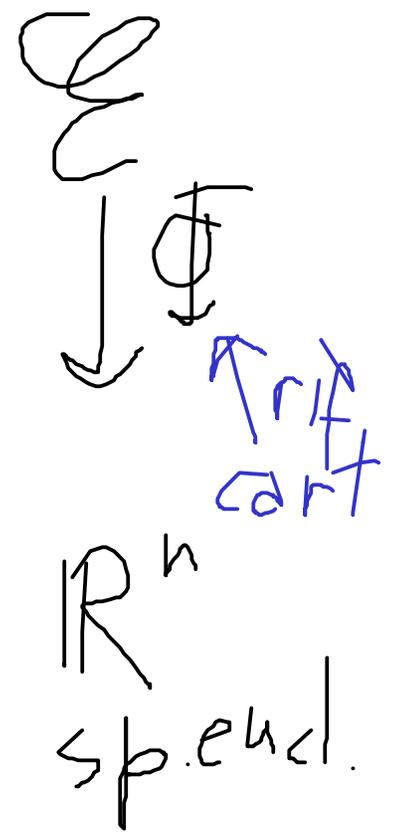
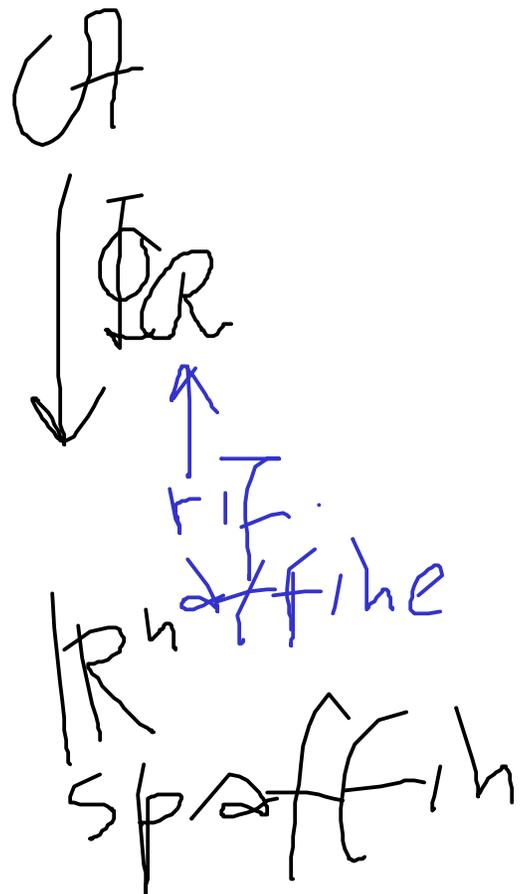
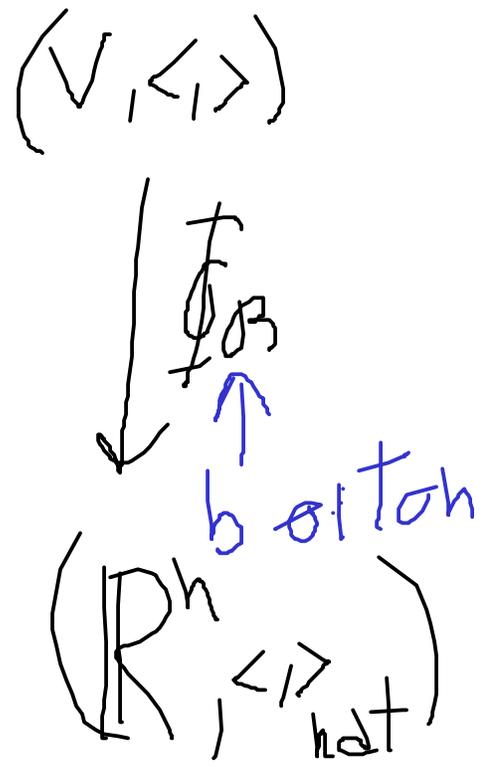
$$\begin{pmatrix} x_0 & 1 & 1 \\ x_1 & 2 & 0 \\ x_2 & 3 & 1 \\ x_3 & 4 & 0 \end{pmatrix} = 2$$

$$\begin{vmatrix} x_0 & 1 & 1 \\ x_1 & 2 & 0 \\ x_2 & 3 & 1 \end{vmatrix} = 0$$

$$\begin{vmatrix} x_0 & 1 & 1 \\ x_1 & 2 & 0 \\ x_3 & 4 & 0 \end{vmatrix} = 0$$

$$2x_0 + 2x_1 - 2x_2 = 0$$

$$4x_1 - 2x_3 = 0$$



In una retta proiettiva
 \mathbb{P}^1 rispetto a un fissato
riferimento proiettivo
 \mathcal{R} , siano

$$A_0 \equiv (1, 1), A_1 \equiv (1, 3), U \equiv (5, 6)$$

1) Si verifichi che
 $\mathcal{R}' = (A_0, A_1, U)$ è
un riferimento
proiettivo

b) Si trovi una base
di \mathbb{R}^2 normalizzata
rispetto ad \mathcal{Q} !

c) Se, rispetto ad \mathcal{Q} ,

$Q \equiv (10, -20)$, se ne
trovano le coordi-
nate rispetto ad \mathcal{Q} !

$$\begin{pmatrix} 1 & 1 & 5 \\ 1 & 3 & 6 \end{pmatrix}$$

$$\begin{array}{c} | \begin{array}{c} 1 \\ 1 \\ 1 \end{array} | \neq 0 \quad | \begin{array}{c} 1 \\ 1 \\ 5 \end{array} | \neq 0 \quad | \begin{array}{c} 1 \\ 3 \\ 5 \end{array} | \neq 0 \\ \hline \checkmark \text{Verif. pro.} \end{array}$$

b) Cerco α, β per cui
 $\alpha(1,1) + \beta(1,3) \sim (5,6)$

$$\left. \begin{array}{l} \alpha + \beta = 5 \\ \alpha + 3\beta = 6 \end{array} \right\} \begin{array}{l} \alpha + \beta = 5 \\ 2\beta = 1 \end{array}$$

$$\left. \begin{array}{l} \alpha = \frac{3}{2} \\ \beta = \frac{1}{2} \end{array} \right\} \text{Invece uso } (\alpha, \beta) = (9, 1)$$

Base normalizzata

$$B' = \left((9, 9), (1, 3) \right)$$

c) Scompongo $(10, -20)$
rispetto a B' .

Cerco x, y t.c.

$$x(9, 9) + y(1, 3) = (10, -20)$$

$$\begin{cases} 9x + y = 10 \\ 9x + 3y = -20 \end{cases}$$

$$\begin{cases} 9x + y = 10 \\ 2y = -30 \end{cases} \quad \begin{cases} x = \frac{10 + 15}{9} = \frac{25}{9} \\ y = -15 \end{cases}$$

$$Q = \frac{1}{9} \begin{pmatrix} 25 \\ -15 \end{pmatrix} \sim \begin{pmatrix} 25 \\ -135 \end{pmatrix} \sim \begin{pmatrix} 5 \\ -27 \end{pmatrix}$$