

$$a \cdot b = 0$$

$$\begin{bmatrix} 1 & 4 \end{bmatrix} \begin{bmatrix} 4 \\ -1 \end{bmatrix} = 0$$

$$\begin{bmatrix} 4 & -12 \\ 2 & -6 \end{bmatrix} \begin{bmatrix} 3 \\ 1 \\ 0 \\ 0 \end{bmatrix}$$

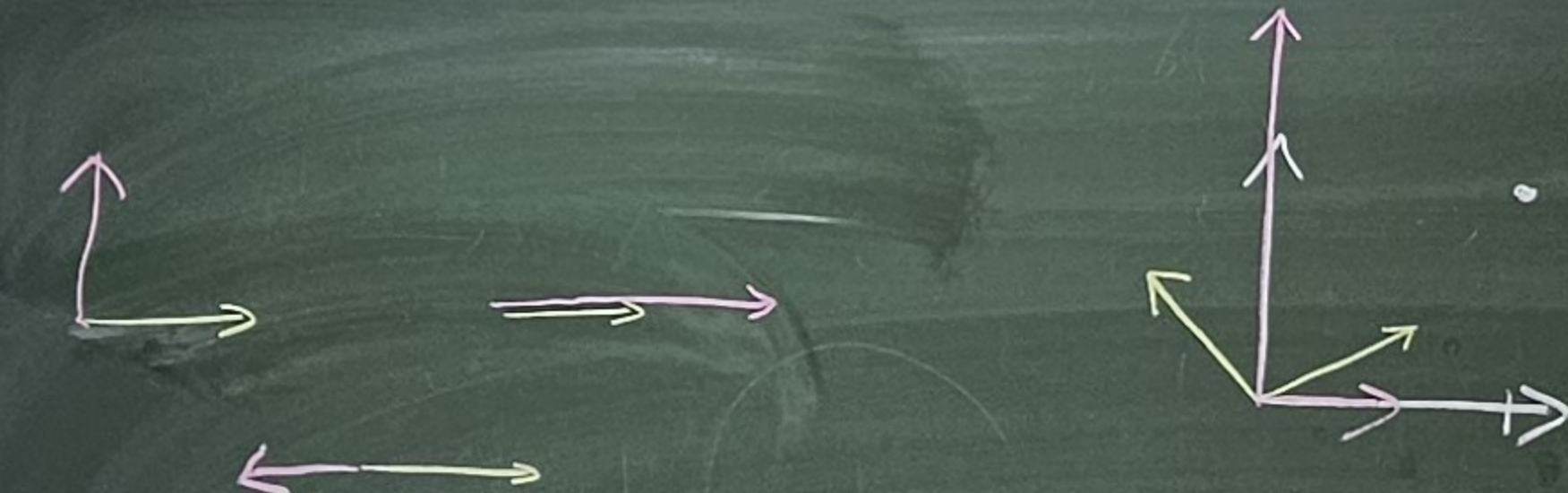
$$\begin{bmatrix} 4 & 8 & 11 \\ -1 & 2 & 1 \end{bmatrix}$$

$$[y]$$

$$= \begin{bmatrix} A \end{bmatrix} \begin{bmatrix} x^{(1)} \\ x^{(2)} \end{bmatrix}$$

1x2 2x1

$$\begin{array}{cc|cc} 1 & -1 & 1 & 0 \\ 1 & 1 & 0 & 1 \\ \hline 2 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \\ \hline 1 & 0 & \frac{1}{2} & \frac{1}{2} \\ 0 & 1 & -\frac{1}{2} & \frac{1}{2} \end{array}$$



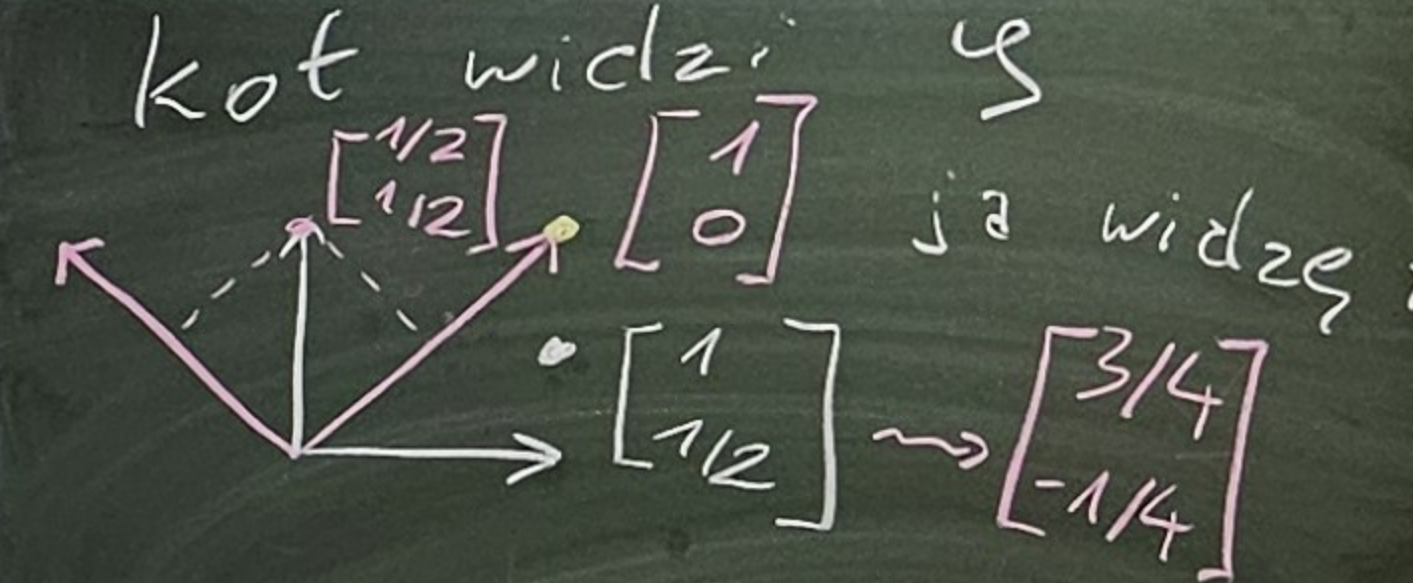
$$\begin{bmatrix} 180 & 90 \end{bmatrix}^T$$

$$\begin{bmatrix} 408 & 198 \end{bmatrix}^T$$

$$\begin{bmatrix} 20 & 0.1 \end{bmatrix}^T$$

$$P^{-1} x = y$$

$$\frac{1}{2} \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix}$$



$$P = \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$$

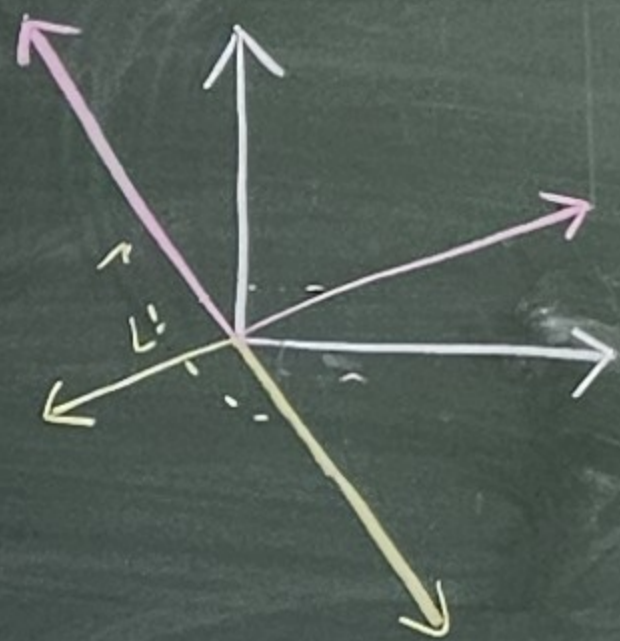
$$K = \begin{bmatrix} \frac{1}{2} & \frac{1}{2} \\ -\frac{1}{2} & \frac{1}{2} \end{bmatrix}$$

$$P y = x$$

$$\begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} \frac{1}{2} \\ \frac{1}{2} \end{bmatrix}$$

$P y = x$ z kociego na nasz (jak widzę kocie wektory)

$P^{-1} x = y$ z naszego na koci (jak kot widzi moje wekt.)



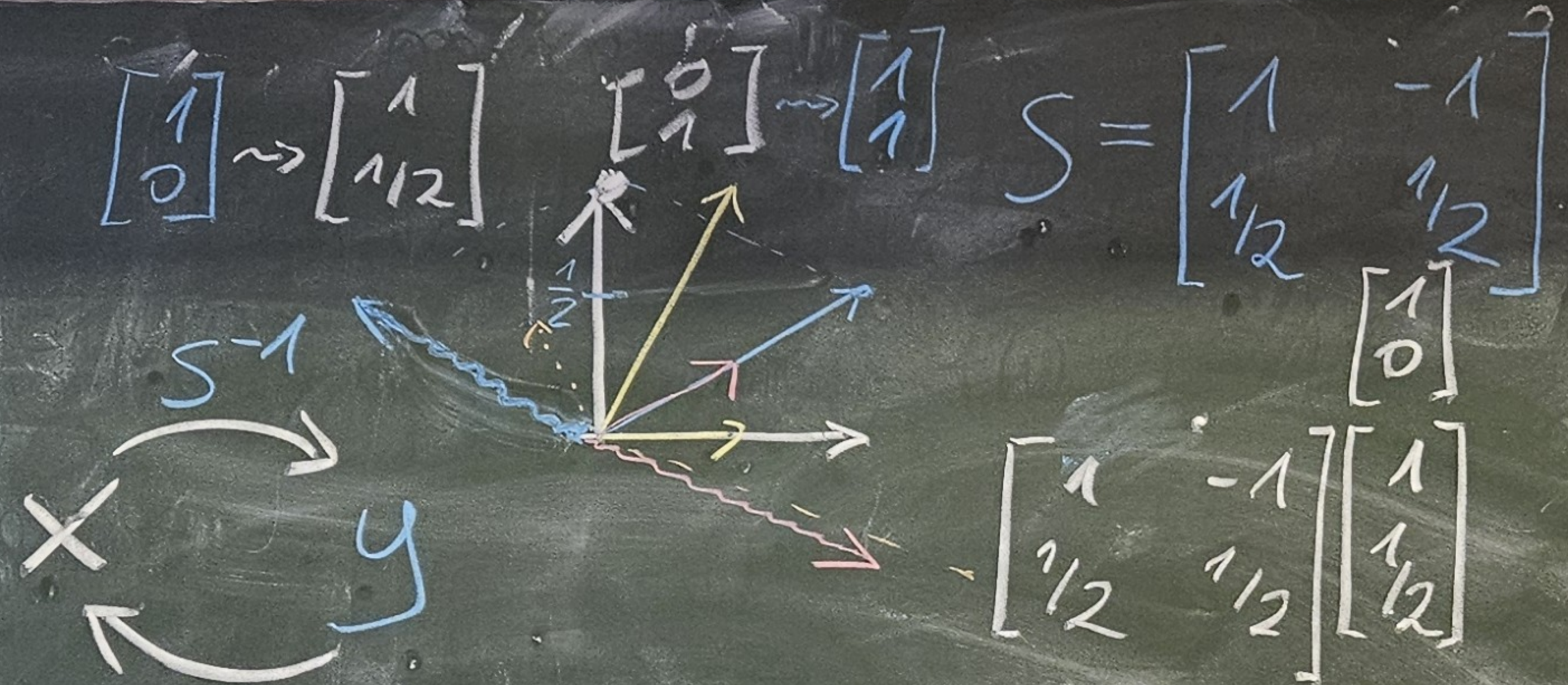
$$P = \begin{bmatrix} 1 & -\frac{1}{2} \\ \frac{1}{2} & 1 \end{bmatrix}$$

$$K = \begin{bmatrix} -\frac{1}{2} & 0 \\ 0 & -1 \end{bmatrix}$$

$$P \overset{\text{T}}{K} P^{-1} x$$

$$A \begin{pmatrix} B & C \\ N \times K & K \times H \end{pmatrix}$$

$$K = P^{-1} T P$$



$$S^{-1} = \begin{bmatrix} 1/2 & 1 \\ -1/2 & 1 \end{bmatrix}$$

$$P = \begin{bmatrix} 1/2 & 0 \\ 0 & -1 \end{bmatrix}$$

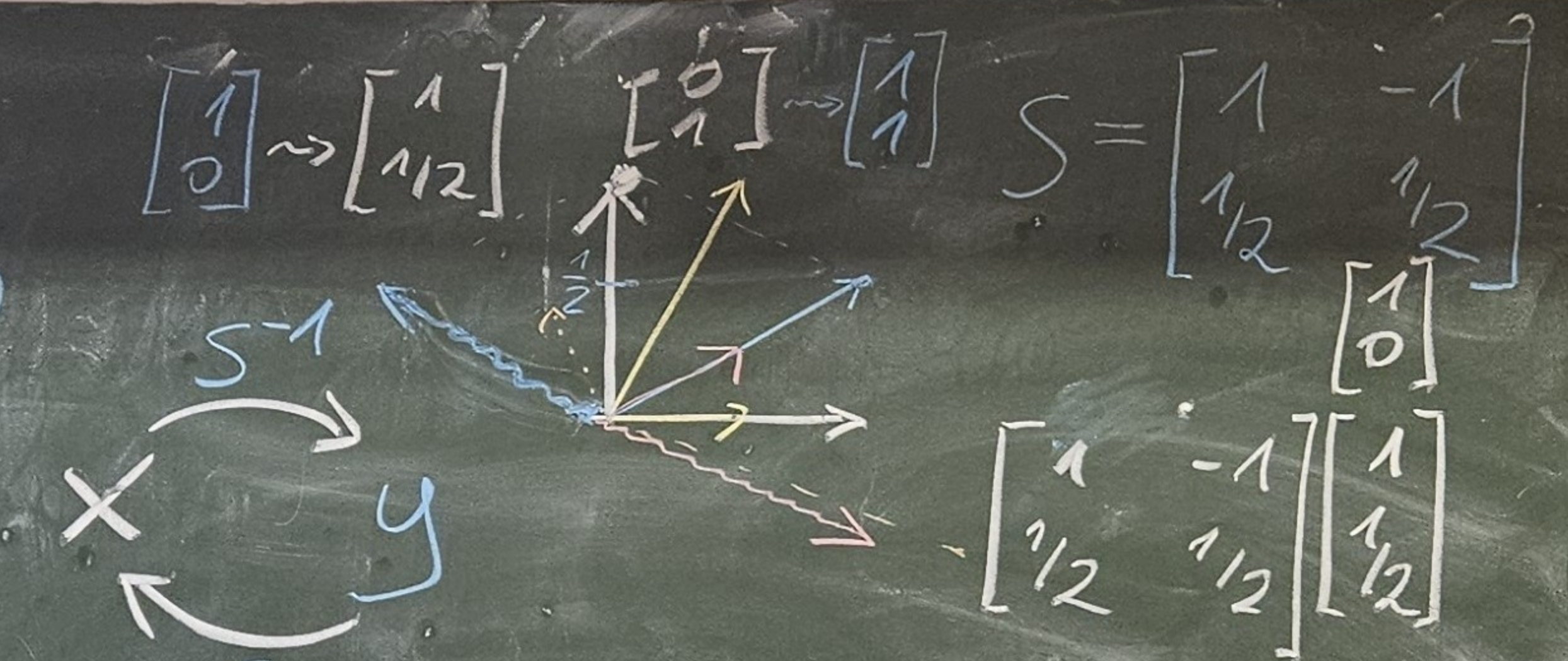
$$T = \begin{bmatrix} -1/4 & 3/2 \\ 3/8 & -1/4 \end{bmatrix}$$

$T = ?$



$$\begin{bmatrix} 2 & 4 & -8 \\ 1 & 1 & -2 \\ 1 & 3 & -6 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 2 & -4 \\ 1 & 1 & -2 \\ 1 & 3 & -6 \end{bmatrix}$$



$$S y = x$$

$$S^{-1} x = y$$

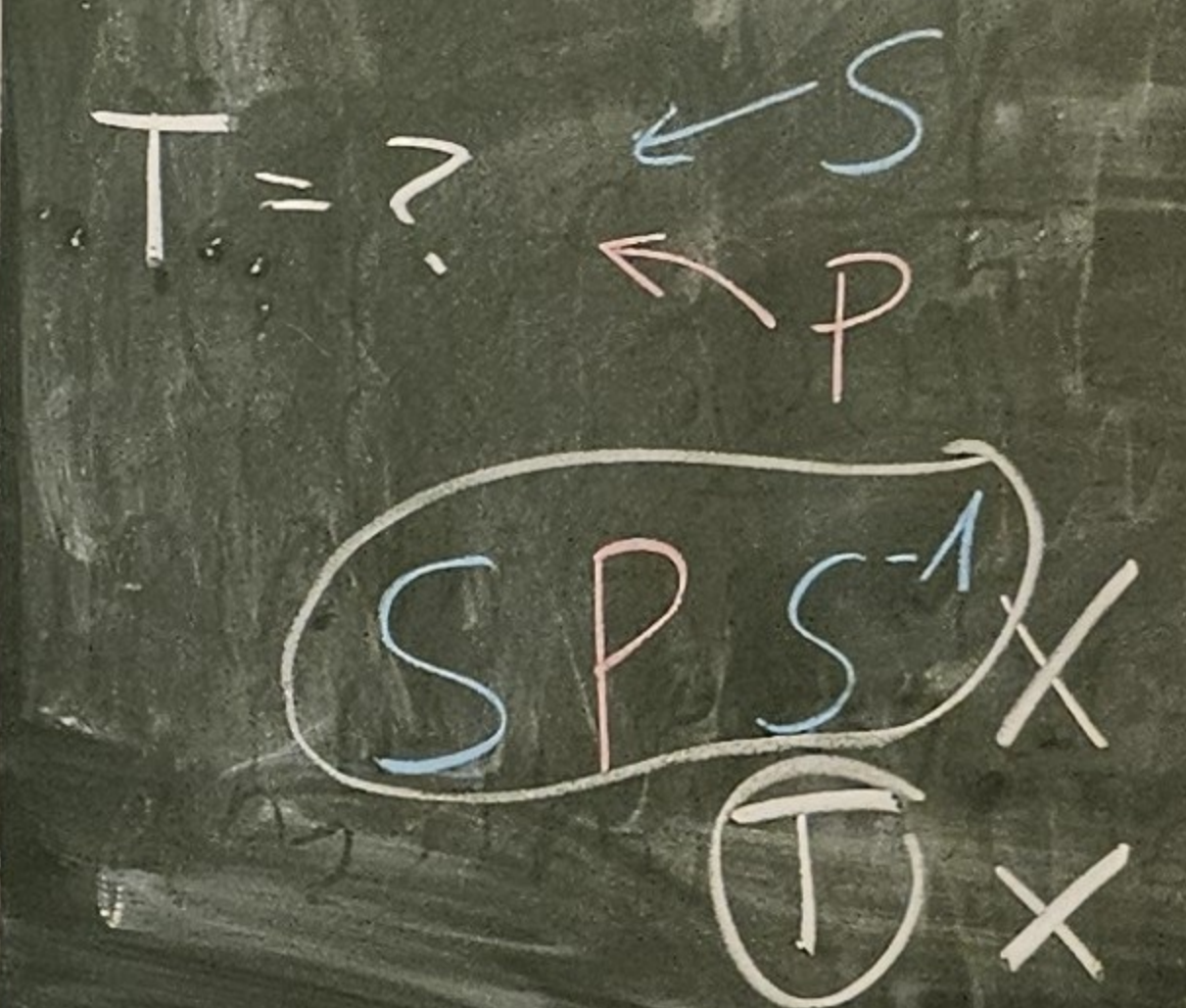
T

$$P = S^{-1} T S$$

$$S^{-1} = \begin{bmatrix} 1/2 & 1 \\ -1/2 & 1 \end{bmatrix}$$

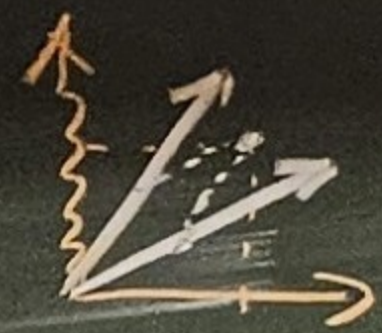
$$P = \begin{bmatrix} 1/2 & 0 \\ 0 & -1 \end{bmatrix}$$

$$T = \begin{bmatrix} -1/4 & 3/2 \\ 3/8 & -1/4 \end{bmatrix}$$



$$\begin{bmatrix} 1 & -\frac{1}{2} \\ -\frac{1}{2} & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \rightarrow$$

$$\rightarrow \begin{bmatrix} -1 & 2 & | & 0 & 2 \\ 2 & -1 & | & 2 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} -1 & 2 & | & 0 & 2 \\ 0 & 0 & | & 2 & -2 \end{bmatrix}$$



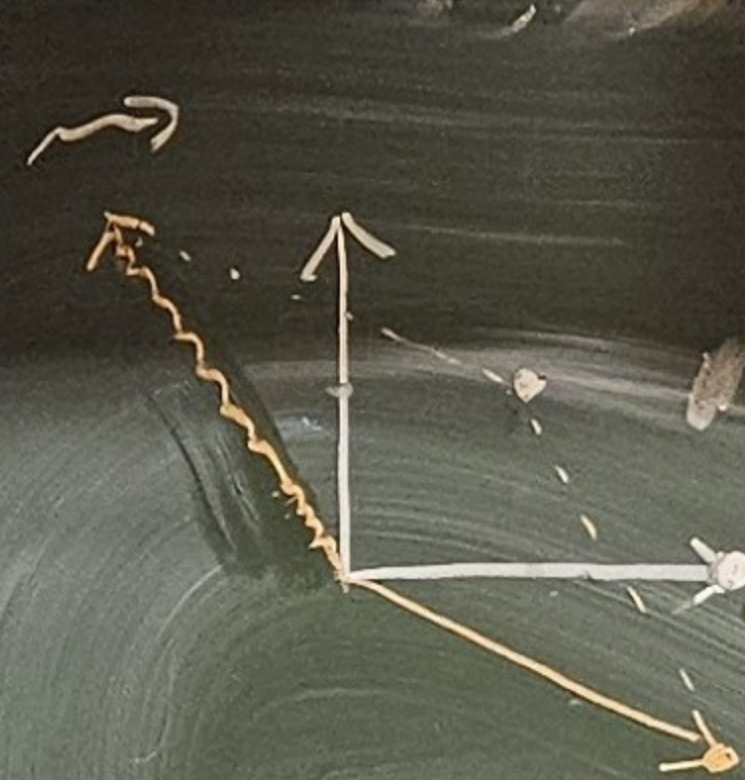
$$\begin{bmatrix} 2 & -1 & | & 2 & 0 \\ -1 & 2 & | & 0 & 2 \end{bmatrix} \begin{matrix} z \\ y \end{matrix}$$

$$\begin{bmatrix} 2 & | & 0 & 2 \\ 3 & | & 2 & 4 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 2 & | & 0 & 2 \\ 0 & 1 & | & \frac{2}{3} & \frac{4}{3} \end{bmatrix}$$

$$\begin{bmatrix} -1 & 0 & | & 0 & 2 \\ 0 & 1 & | & \frac{2}{3} & \frac{4}{3} \end{bmatrix}$$

$$\begin{bmatrix} \frac{1}{2} \\ \frac{1}{2} \end{bmatrix}$$

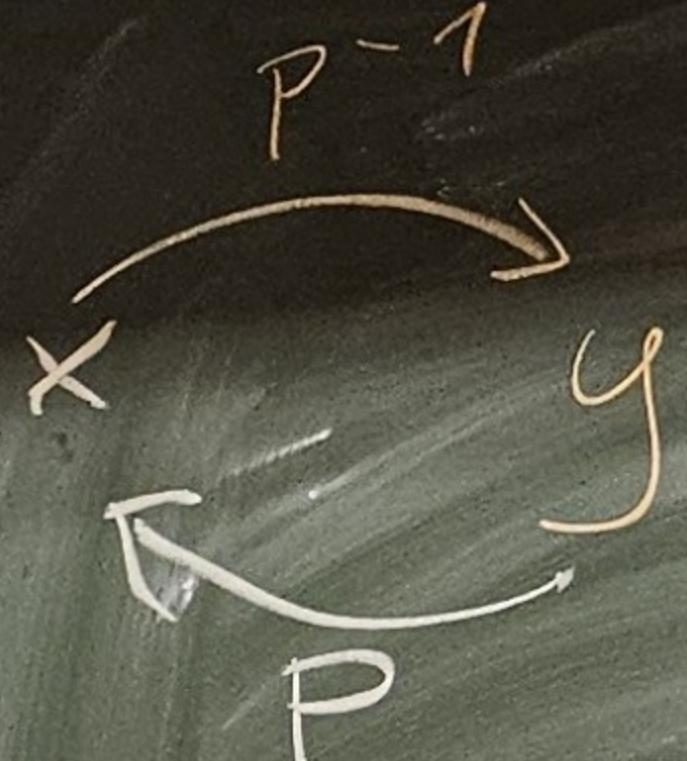


$$P = \begin{bmatrix} 1 & -\frac{1}{2} \\ -\frac{1}{2} & 1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -\frac{1}{2} \\ -\frac{1}{2} & 1 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ -\frac{1}{2} \end{bmatrix}$$

$$P y = x$$

$$P^{-1} x = y$$



$$\begin{bmatrix} 1 & 0 & | & \frac{4}{3} & \frac{2}{3} \\ 0 & 1 & | & \frac{2}{3} & \frac{4}{3} \end{bmatrix}$$

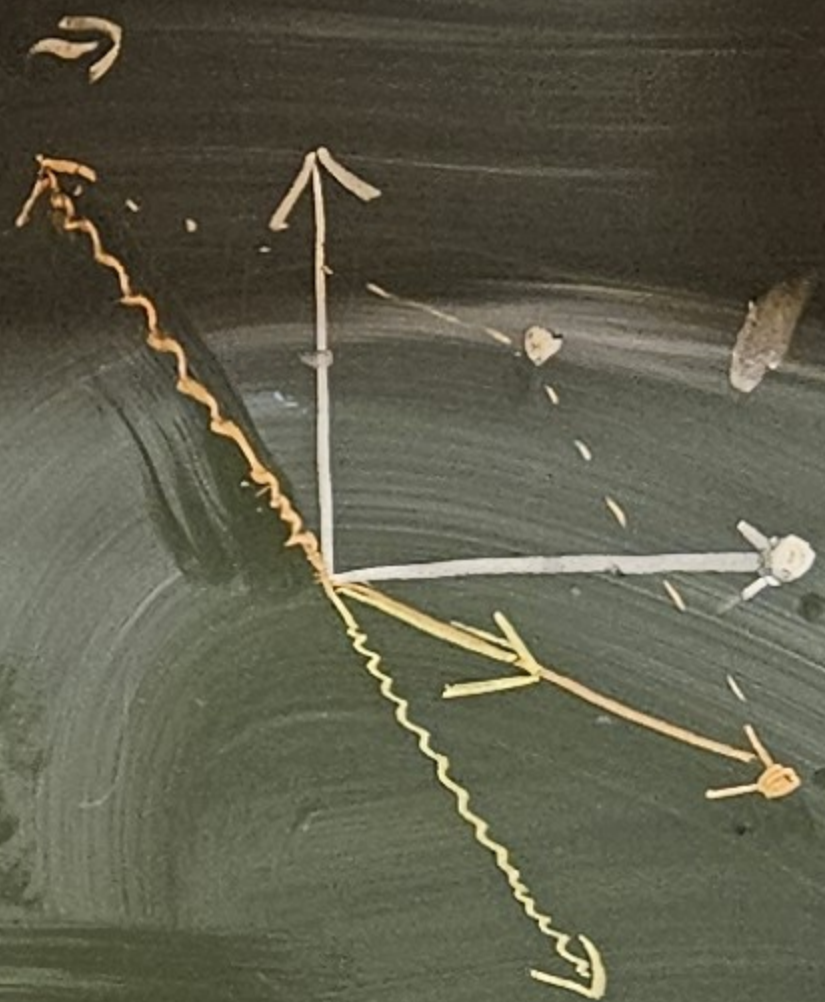
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$$a \cdot b = 0$$

$$\begin{bmatrix} \\ \\ \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} = 0$$
$$\begin{bmatrix} \\ \\ \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$$S = P^{-1} T P$$

$$T = \begin{bmatrix} 1 & 1 \\ -1 & -3/2 \end{bmatrix}$$



$$P = \begin{bmatrix} 1 & -1/2 \\ -1/2 & 1 \end{bmatrix}$$

$$S = \begin{bmatrix} 1/2 & 0 \\ 0 & -1 \end{bmatrix}$$

$$T = ? \quad \leftarrow \begin{matrix} P \\ S \end{matrix}$$

$$\textcircled{P S P^{-1}} \begin{matrix} X \\ T \\ X \end{matrix}$$