CH03_11

<Invertible Transformations>

$Ax = b \longleftrightarrow x = A^{-1}b$

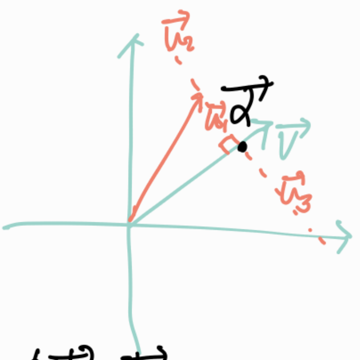
$\mathbb{R}$: 실수 전체 집합.
$\mathbb{R}^2$: 2차원 〃
$\mathbb{R}^3$: 3차원 〃

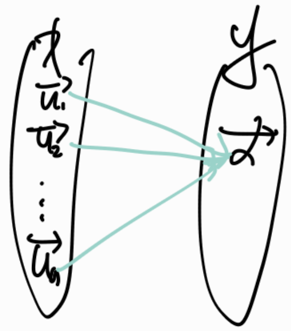
역추적을 하겠다!

<Inverse>

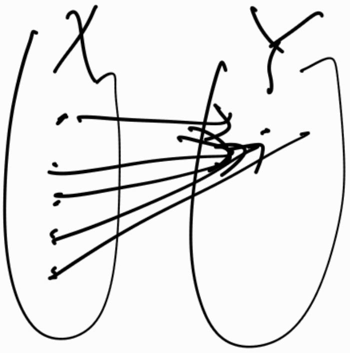
$a ☺ x = e \longrightarrow x = a^{-1}$

$$\overset{A}{\begin{pmatrix}\cos\theta & -\sin\theta \\ \sin\theta & \cos\theta\end{pmatrix}}^{-1} = \overset{A^{-1}}{\begin{pmatrix}\cos\theta & \sin\theta \\ -\sin\theta & \cos\theta\end{pmatrix}}$$





$A\vec{x} = \vec{b}$
$0^{-1} = \frac{1}{0}$ ⇝ None Invertable Transformations
1:1 대응이 아님.



$a \circ a^{-1} = 1$ ⇝ 항등원 $= I$
$\Rightarrow a \circ a^{-1} = I$

$$A \circ A^{-1} = I$$

$$\begin{pmatrix}a & b \\ c & d\end{pmatrix}\begin{pmatrix}d & -b \\ -c & a\end{pmatrix} = \begin{pmatrix}ad-bc & \cancel{-ab+ab} \\ \cancel{dc-dc} & ad-bc\end{pmatrix} = (ad-bc) \circ I$$

$$= \underbrace{\boxed{\begin{pmatrix}a & b \\ c & d\end{pmatrix}}}_{A} \circ \underbrace{\boxed{\frac{1}{ad-bc}\begin{pmatrix}d & -b \\ -c & a\end{pmatrix}}}_{A^{-1}} = I$$

If) $ad-bc=0$ 이면 None Invertable / $\neq 0$, Invertable