Osservazione

- $T : V \longrightarrow W$ e $T' : W \longrightarrow Z$ appl. lineari

$\Rightarrow T' \circ T : V \longrightarrow Z$ è lineare

- $T : V \longrightarrow W$ isomorfismo $\Rightarrow T^{-1} : W \longrightarrow V$ appl. lineare (isomorfismo)

Esempi

- $\widetilde{T} : K^n \longrightarrow K^m$ appl. lineare (standard)

$\widetilde{T} : \mathbb{R}^3 \longrightarrow \mathbb{R}^2$ $\qquad (a,b,c),(a',b',c') \in \mathbb{R}^3$

$(a,b,c) \rightsquigarrow (a+b, a-c)$

①

$$\widetilde{T}\big((a,b,c)+(a',b',c')\big) = \widetilde{T}\big((a+a', b+b', c+c')\big) =$$

$$= \underline{\big(a+a'+b+b', a+a'-(c+c')\big)}$$

$$\widetilde{T}(a,b,c) + \widetilde{T}(a',b',c') = \underline{(a+b, a-c) + (a'+b', a'-c')}$$

② $\alpha \in \mathbb{R}$

$$\widetilde{T}(\alpha(a,b,c)) = \widetilde{T}((\alpha a, \alpha b, \alpha c)) = (\alpha a + \alpha b, \alpha a - \alpha c)$$

$$\alpha \cdot \widetilde{T}((a,b,c)) = \alpha(a+b,\, a-c)$$

Quindi $\widetilde{T}$ è lineare