

# Homework 16

$$T: \mathbb{R}^4 \rightarrow \mathbb{R}^3$$

Bases

$$\mathbb{R}^4 \rightarrow \{(1, 2, 3, 4), (11, 10, 9, 8), (1, 5, 7, 2), (0, 0, 0, 1)\}$$

Mapped elements in  $\mathbb{R}^3$

$$\{(5, 6, 7), (2, 3, 1), (7, 8, 6), (9, 1, 1)\}$$

$$M(u)$$

$$\mathbb{R}^4 \rightarrow \{(1, 2, 3, 4), (11, 10, 9, 8), (1, 5, 7, 2), (0, 0, 0, 1)\}$$

find matrix  $M(S)$  s.t.  $\mathbb{R}^4 \rightarrow \mathbb{R}^3$

$$M(S) = \begin{pmatrix} 5 & 2 & 7 & 9 \\ 6 & 3 & 8 & 1 \\ 7 & 1 & 6 & 1 \end{pmatrix}$$