

Arturo Barrios
 HW #1
 CSE 5542
 Section 11:10

①

$$\underline{T_2 = f \cdot T_1}$$

vertices of $T_1 : (1,0,0), (0,1,0), (0,0,1)$
 vertices of $T_2 : (4.5,0,0), (0,4,0), (0,0,4.5)$
 $T_1 \Rightarrow T_2$

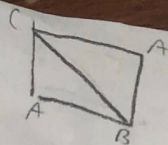
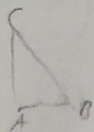
$$\Rightarrow \{(1,0,0), (0,1,0), (0,0,1)\} \rightarrow \{(4.5,0,0), (0,4,0), (0,0,4.5)\}$$

$$T_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \quad T_2 = \begin{bmatrix} 4.5 & 0 & 0 & 0 \\ 0 & 4 & 0 & 0 \\ 0 & 0 & 4.5 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 4.5 & 0 & 0 & 0 \\ 0 & 4 & 0 & 0 \\ 0 & 0 & 4.5 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 4.5 \\ 4 \\ 4.5 \\ 1 \end{bmatrix}$$

$\underline{T_2}$ \underline{F} $\underline{T_2}$

$$F = \begin{bmatrix} 4.5 \\ 4 \\ 4.5 \\ 1 \end{bmatrix}$$



② $V_0 = (0, 0, 4.5)$

$V_1 = (4.5, 0, 4.5)$

$V_2 = (0, 4, 4.5)$

$V_3 = (4.5, 4, 4.5)$

$V_4 = (0, 0, 0)$

$V_5 = (4.5, 0, 0)$

$V_6 = (0, 4, 0)$

$V_7 = (4.5, 4, 0)$

$F_1 \begin{cases} T_1 = (V_0, V_1, V_2) \\ T_2 = (V_3, V_4, V_5) \end{cases}$

$F_2 \begin{cases} T_3 = (V_5, V_6, V_7) \\ T_4 = (V_3, V_1, V_7) \end{cases}$

$F_3 \begin{cases} T_5 = (V_5, V_4, V_7) \\ T_6 = (V_6, V_4, V_7) \end{cases}$

$F_4 \begin{cases} T_7 = (V_0, V_4, V_2) \\ T_8 = (V_6, V_4, V_2) \end{cases}$

$F_5 \begin{cases} T_9 = (V_3, V_7, V_2) \\ T_{10} = (V_6, V_7, V_2) \end{cases}$

$F_6 \begin{cases} T_{11} = (V_0, V_1, V_4) \\ T_{12} = (V_5, V_1, V_4) \end{cases}$