		V	W				
6)	$\mathbb{R}^3$	$e_1\ (1,1,0)$ $e_2\ (1,0,1)$	$(0,1,-1)\ e_3$ $(3,1,2)\ e_5$	2	2	2	2

$V \cap W$: $\quad a e_1 + b e_2 = c e_3 + d e_5 \rightsquigarrow$

$$\rightsquigarrow a e_1 + b e_2 - c e_3 - d e_5 = 0$$

$$\begin{array}{c} \begin{array}{cccc} e_1 & e_2 & e_3 & e_5 \end{array} \\ \begin{pmatrix} 1 & 1 & 0 & 3 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & -1 & 2 \end{pmatrix} \end{array} \begin{pmatrix} a \\ b \\ -c \\ -d \end{pmatrix} = 0$$

$$\begin{array}{c} \begin{array}{cccc} e_1 & e_2 & e_3 & e_5 \end{array} \\ \begin{pmatrix} 1 & 1 & 0 & 3 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & -1 & 2 \end{pmatrix} \end{array} \rightsquigarrow \begin{pmatrix} 1 & 1 & 0 & 3 \\ 0 & -1 & 1 & -2 \\ 0 & 0 & 0 & 0 \end{pmatrix} \rightsquigarrow \begin{cases} a + b - 3d = 0 \\ -b - c + 2d = 0 \end{cases}$$

$$\rightsquigarrow \begin{cases} a = -b + 3d = c + d \\ b = -c + 2d \end{cases} \qquad \begin{cases} a = s + \delta \quad b = -s + 2\delta \\ c = s \quad d = \delta \end{cases}$$

VERIFICA:

$$\rightsquigarrow (s+\delta) \overset{e_1}{\begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix}} + (-s+2\delta) \overset{e_2}{\begin{pmatrix} 1 \\ 0 \\ 1 \end{pmatrix}} = s \begin{pmatrix} 1-1 \\ 1-0 \\ 0-1 \end{pmatrix} + \delta \begin{pmatrix} 1+2 \\ 1+0 \\ 0+2 \end{pmatrix} =$$

$$= s \overset{e_3}{\begin{pmatrix} 0 \\ 1 \\ -1 \end{pmatrix}} + \delta \overset{e_5}{\begin{pmatrix} 3 \\ 1 \\ 2 \end{pmatrix}}$$

$$\rightsquigarrow V \cap W = \mathrm{SPAN}\{e_1, e_2\} = \mathrm{SPAN}\{e_3, e_5\}$$