M293 F FAQS #2

33)

(a) $\left\{ \begin{bmatrix} 0 \\ -1 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ -1 \\ 0 \\ 1 \end{bmatrix} \right\}$

(b) 2

(c) Yes. Two dimensional object in $\mathbb{R}^4$

(d) w is all $s\begin{bmatrix} 0 \\ -1 \\ 1 \\ 0 \end{bmatrix} + t\begin{bmatrix} -1 \\ 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} -t \\ -s-t \\ s \\ t \end{bmatrix} = \begin{bmatrix} x \\ y \\ z \\ u \end{bmatrix}$

i.e. $x = t$, $y = -s-t$, $z = s$, $u = t$, s, t arbitrary

Obviously: $x = u$

Eliminating s, t between the first 3 eqns, we have

$x + y + z = 0$ i.e. $a = 1, b = 1, c = 1, d = 0$.

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34) The answer is c).

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35) The answer is d).

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36) The answer is d).