

Solutions for Take-Home Quiz due 2/4

1. Find a set (with at most five elements) which spans the space

$V = \{a + bx + cx^2 \text{ such that } a + c = 0 \text{ with } a, b, c \text{ real numbers}\}.$

One possibility: $\{x, x^2 - 1\}.$

2. Find a set (with at most five elements) which spans the space W' which is a subset

of two-by-two matrices with entries: $\begin{pmatrix} a & b \\ c & a+b \end{pmatrix}$ such that $b + c = 0$ and a, b, c are real numbers.

One possibility: $\left\{ \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}, \begin{pmatrix} 0 & 1 \\ -1 & 1 \end{pmatrix} \right\}$