

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