Math 196 - Quiz 6, October 9, 2008 Name:----------

Problem 1. Let V be the subspace in $\mathbb{R}^4$ given by all solutions to the following homogeneous system of linear equations:

$$2x_1 + 4x_2 - 6x_3 = 0$$
$$x_1 + x_2 - x_3 + 3x_4 = 0$$
$$x_1 - x_2 + 3x_3 + 9x_4 = 0.$$

1. Find a linearly independent set for V.

2. Find a spanning set for V.

3. Find a basis for V.

4. What is the dimension of V?