

Quiz 6

MA 262
Artur's Class

2014/10/09

Problem 1

Let S be the subspace of \mathbb{R}^3 consisting of all solutions to the equation

$$2x - y - 3z = 0.$$

Give a set of vectors which span S . (How many vectors do you need?)

Problem 2

Consider the vector space, $M_2(\mathbb{R})$ of 2×2 matrices of real numbers. Do the following two matrices span $M_2(\mathbb{R})$?

$$\mathbf{M} = \begin{pmatrix} 2 & -1 \\ 3 & 4 \end{pmatrix}, \quad \mathbf{N} = \begin{pmatrix} -1 & 2 \\ 1 & 3 \end{pmatrix},$$

Show work and/or say something interesting about why this is obviously true or obviously false. Convince me, but keep it short and precise!