Homework 4
Linear Algebra, Dave Bayer, due February 25, 2014

Name: _____ **Uni:** _____

[1]	[2]	[3]	**Total**

If you need more that one page for a problem, clearly indicate on each page where to look next for your work.

[1] Find the 2×2 matrix A such that

$$A \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \end{bmatrix} \qquad \text{and} \qquad A \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$

[2] Find the 3×3 matrix A that projects orthogonally onto the line

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix} t$$

[3] By least squares, find the equation of the form $y = ax + b$ which best fits the data

$$(x_1, y_1) = (0, 0), \quad (x_2, y_2) = (2, 2), \quad (x_3, y_3) = (3, 1)$$