F17 10:10 Exam 1 Problem 1
Linear Algebra, Dave Bayer

test42b1p1

[Reserved for Score]

Test 42

Name ______________________ Uni ____________

[1] Find the general solution to the following system of equations.

$$\begin{bmatrix} 1 & 1 & 1 & 2 & 1 \\ 1 & 1 & 2 & 1 & 1 \\ 1 & 2 & 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} v \\ w \\ x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} v \\ w \\ x \\ y \\ z \end{bmatrix} =$$

F16 10:10 Exam 1 Problem 1
Linear Algebra, Dave Bayer

test91b1p1

[Reserved for Score]

Test 91

Name ______________________ Uni ______________

[1] Find the general solution to the following system of equations.

$$\begin{bmatrix} 5 & 7 & 1 & 2 \\ 3 & 4 & 1 & 1 \\ 2 & 3 & 0 & 1 \end{bmatrix} \begin{bmatrix} w \\ x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix}$$

$$\begin{bmatrix} w \\ x \\ y \\ z \end{bmatrix} =$$

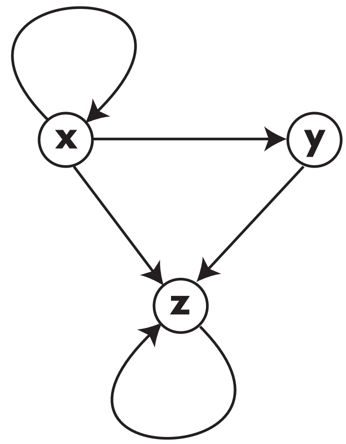
F14 11:40 Exam 1 Problem 2
Linear Algebra, Dave Bayer

exam08b1p2

[Reserved for Score]

Exam 08

[2] Using matrix multiplication, count the number of paths of length eight from x to z.



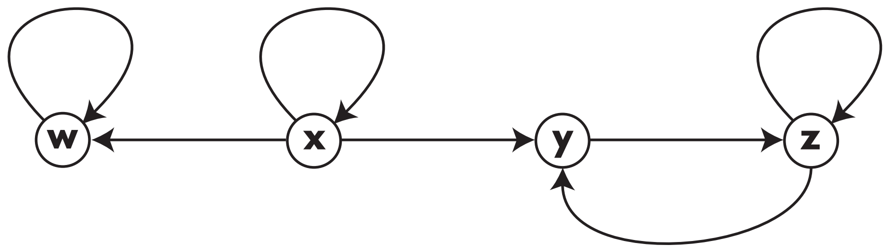
F15 Exam 1 Problem 2
Linear Algebra, Dave Bayer

test30a1p2

[Reserved for Score]

Test 30

[2] Using matrix multiplication, count the number of paths of length ten from x to z.



number of paths $=$

F17 8:40 Exam 1 Problem 4
Linear Algebra, Dave Bayer

test36a1p4

[Reserved for Score]

Test 36

[4] Find the 2×2 matrix A that reflects across the line $2y = 3x$.

$$A = \frac{1}{\square} \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix}$$

F17 10:10 Exam 1 Problem 4
Linear Algebra, Dave Bayer

test42b1p4

[Reserved for Score]

Test 42

[4] Find the 2×2 matrix A that reflects across the line $4y = x$.

$$A = \frac{1}{\square} \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix}$$

F15 Exam 1 Problem 3
Linear Algebra, Dave Bayer

test30a1p3

[Reserved for Score]

Test 30

[3] Express A as a product of four elementary matrices, where

$$A = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$$

$$A = \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix} \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix} \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix} \begin{bmatrix} \square & \square \\ \square & \square \end{bmatrix}$$

F14 8:40 Exam 1 Problem 4
Linear Algebra, Dave Bayer

exam03a1p4

[Reserved for Score]

Exam 03

[4] Find the matrix A such that

$$A \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 2 & 1 \\ 1 & 1 & 1 \\ 1 & 2 & 2 \end{bmatrix}$$

F17 10:10 Exam 1 Problem 3
Linear Algebra, Dave Bayer

test42b1p3

[Reserved for Score]

Test 42

[3] Find the intersection of the following two affine subspaces of $\mathbb{R}^3$.

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ 1 & 1 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} q \\ r \end{bmatrix}, \qquad \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix} + \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} s \\ t \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} =$$

[Reserved for Score]

Exam 08

exam08b1p5

[5] Find the intersection of the following two affine subspaces of $\mathbb{R}^4$.

$$\begin{bmatrix} 1 & 1 & 1 & -2 \\ 1 & 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} w \\ x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 4 \end{bmatrix}$$

$$\begin{bmatrix} w \\ x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \end{bmatrix} + \begin{bmatrix} 1 & 1 \\ -1 & 1 \\ 1 & 1 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} r \\ s \end{bmatrix}$$