Practice Final A

Linear Algebra, Dave Bayer, April 25, 2012

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Total

Please draw a box around your final answer. Please use each printed sheet (front and back) *only* for that problem, not for any other problem. There are blank sheets at the end of the exam, to give you more room to work. However, your final answer will not be graded unless it appears on the same sheet (front or back) as the printed problem.

[1] Find A^n where A is the matrix

$$\begin{bmatrix} -1 & 2 \\ 3 & -2 \end{bmatrix}$$

[2] Find A^n where A is the matrix

$$\begin{bmatrix} -1 & 3 \\ 3 & -1 \end{bmatrix}$$

[3] Find e^{At} where A is the matrix

$$\begin{bmatrix} 1 & 1 \\ 3 & 3 \end{bmatrix}$$

[4] Find e^{At} where A is the matrix

$$\begin{bmatrix} 1 & -1 \\ 1 & 3 \end{bmatrix}$$

[5] Express $x^2 + 6xy + y^2$ as a linear combination of squares of orthogonal linear forms.

[6] Convert the differential equation $y'' - 3y' + 2y = 0$ to matrix form, and solve by exponentiating.

[7] Find e^{At} where A is the matrix

$$\begin{bmatrix} 1 & -4 & 2 \\ 0 & 2 & 0 \\ 0 & -2 & 3 \end{bmatrix}$$

[8] Find e^{At} where A is the matrix

$$\begin{bmatrix} 1 & 1 & 0 \\ -2 & 4 & 1 \\ 2 & -2 & 0 \end{bmatrix}$$

Practice Final B

Linear Algebra, Dave Bayer, April 25, 2012

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Total

Please draw a box around your final answer. Please use each printed sheet (front and back) *only* for that problem, not for any other problem. There are blank sheets at the end of the exam, to give you more room to work. However, your final answer will not be graded unless it appears on the same sheet (front or back) as the printed problem.

[1] Find A^n where A is the matrix

$$\begin{bmatrix} 3 & 2 \\ 2 & 3 \end{bmatrix}$$

[2] Find A^n where A is the matrix

$$\begin{bmatrix} -2 & -3 \\ 1 & 2 \end{bmatrix}$$

[3] Find e^{At} where A is the matrix

$$\begin{bmatrix} -1 & -1 \\ 3 & 3 \end{bmatrix}$$

[4] Find e^{At} where A is the matrix

$$\begin{bmatrix} 3 & -1 \\ 1 & 1 \end{bmatrix}$$

[5] Express $-3x^2 + 8xy + 3y^2$ as a linear combination of squares of orthogonal linear forms.

[6] Convert the differential equation $y'' - 5y' + 6y = 0$ to matrix form, and solve by exponentiating.

[7] Find e^{At} where A is the matrix

$$\begin{bmatrix} 4 & -2 & 1 \\ -2 & 4 & -2 \\ -6 & 6 & -3 \end{bmatrix}$$

[8] Find e^{At} where A is the matrix

$$\begin{bmatrix} 0 & 1 & 1 \\ -1 & 2 & 1 \\ 0 & 0 & 1 \end{bmatrix}$$

Practice Final C

Linear Algebra, Dave Bayer, April 25, 2012

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Total

Please draw a box around your final answer. Please use each printed sheet (front and back) *only* for that problem, not for any other problem. There are blank sheets at the end of the exam, to give you more room to work. However, your final answer will not be graded unless it appears on the same sheet (front or back) as the printed problem.

[1] Find A^n where A is the matrix

$$\begin{bmatrix} -1 & -3 \\ 2 & 4 \end{bmatrix}$$

[2] Find A^n where A is the matrix

$$\begin{bmatrix} -2 & 2 \\ 2 & 1 \end{bmatrix}$$

[3] Find e^{At} where A is the matrix

$$\begin{bmatrix} 4 & -1 \\ 1 & 2 \end{bmatrix}$$

[4] Find e^{At} where A is the matrix

$$\begin{bmatrix} -1 & 1 \\ 2 & -2 \end{bmatrix}$$

[5] Express $-x^2 + 6xy - y^2$ as a linear combination of squares of orthogonal linear forms.

[6] Convert the differential equation $y'' - 2y' + y = 0$ to matrix form, and solve by exponentiating.

[7] Find e^{At} where A is the matrix

$$\begin{bmatrix} -2 & 2 & -2 \\ -4 & 4 & -3 \\ 0 & 0 & 1 \end{bmatrix}$$

[8] Find e^{At} where A is the matrix

$$\begin{bmatrix} 0 & 1 & -1 \\ 0 & 1 & 1 \\ 1 & -1 & 3 \end{bmatrix}$$

Practice Final D

Linear Algebra, Dave Bayer, April 25, 2012

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Total

Please draw a box around your final answer. Please use each printed sheet (front and back) *only* for that problem, not for any other problem. There are blank sheets at the end of the exam, to give you more room to work. However, your final answer will not be graded unless it appears on the same sheet (front or back) as the printed problem.

[1] Find A^n where A is the matrix

$$\begin{bmatrix} -3 & 1 \\ 2 & -2 \end{bmatrix}$$

[2] Find A^n where A is the matrix

$$\begin{bmatrix} 4 & 5 \\ 5 & 4 \end{bmatrix}$$

[3] Find e^{At} where A is the matrix

$$\begin{bmatrix} -1 & -2 \\ 2 & 4 \end{bmatrix}$$

[4] Find e^{At} where A is the matrix

$$\begin{bmatrix} -3 & -1 \\ 4 & 1 \end{bmatrix}$$

[5] Express $-8x^2 + 12xy + 8y^2$ as a linear combination of squares of orthogonal linear forms.

[6] Convert the differential equation $y'' - 2y' - 3y = 0$ to matrix form, and solve by exponentiating.

[7] Find e^{At} where A is the matrix

$$\begin{bmatrix} 4 & -3 & -1 \\ 3 & -2 & -1 \\ 2 & -2 & 0 \end{bmatrix}$$

[8] Find e^{At} where A is the matrix

$$\begin{bmatrix} -3 & 4 & -2 \\ -3 & 4 & -2 \\ -2 & 2 & -1 \end{bmatrix}$$