

Math 290

Friday, March 5  
in C(A)

Section FS

$A^t \rightarrow$

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

$$\begin{bmatrix} 9 \\ 2 \\ -3 \\ -2 \end{bmatrix} = 9 \begin{bmatrix} 1 \\ 0 \\ 0 \\ -1/4 \end{bmatrix} + 2 \begin{bmatrix} 0 \\ 1 \\ 0 \\ 1/2 \end{bmatrix} + 3 \begin{bmatrix} 0 \\ 0 \\ 1 \\ 1/4 \end{bmatrix}$$

Mon - Problems Writing M  
 Tue - EXAM M  
 Thu - VS (RQ)  
 Fri - S

Ex 1

$$\begin{array}{l} 1 \\ 2 \\ -1 \\ 4 \end{array} \begin{bmatrix} 5 & 10 & -1 & 1 & 18 & | & 1 & 0 & 0 & 0 \\ -4 & -8 & 4 & 3 & -10 & | & 0 & 1 & 0 & 0 \\ 1 & 2 & -1 & -1 & 2 & | & 0 & 0 & 1 & 0 \\ -3 & -6 & 2 & 1 & -9 & | & 0 & 0 & 0 & 1 \end{bmatrix}$$

A  $I_4$

REF

$$\begin{bmatrix} 1 & 2 & 0 & 0 & 3 & | & 0 & 1 & 2 & -1 \\ 0 & 0 & 1 & 0 & -1 & | & 0 & 2 & 5 & -1 \\ 0 & 0 & 0 & 1 & 2 & | & 0 & -1 & -4 & 0 \\ 0 & 0 & 0 & 0 & 0 & | & 1 & -2 & -1 & 4 \end{bmatrix}$$

B

J  
 K  
 L

Facts  $B = JA$

$J$  is nonsingular

$$LS(A, \underline{b}) \rightarrow A\underline{x} = \underline{b}, [A|\underline{b}]$$

$$J(A\underline{x}) = J\underline{b}$$

$$B\underline{x} = J\underline{b}$$

$$[B|J\underline{b}]$$

$$LS(B, J\underline{b})$$

Want  $C(A)$

$$\left[ A \mid \begin{matrix} a \\ b \\ c \\ d \end{matrix} \right]$$

~~RREF~~

$$\left[ \begin{array}{cccc|c} 0 & 0 & 0 & 0 & a-2b-c+4d \end{array} \right]$$

want  $a-2b-c+4d=0$

$a-2b-c+4d=0$

1	0	0	0	1	0	0	0
0	1	0	0	0	1	0	0
0	0	1	0	0	0	1	0
0	0	0	1	0	0	0	1

Theorem FS

$$N(A) = N(C)$$

$$R(A) = R(C)$$

$$C(A) = N(L)$$

$$L(A)$$

$$[1 \ -2 \ -14] A = [0 \ 0 \ 0 \ 0]$$