

Math 320 (Smith): Problem Set 7

DUE Thursday March 27, 2008

1. EP Section 4.3: 14, 15, 20, 21, 24
2. EP Section 4.4: 6, 10, 14, 22, 23
3. EP Section 5.1: 10, 19, 24, 26, 32, 34, 42
4. (a) For what vectors \mathbf{b} does $\mathbf{Ax} = \mathbf{b}$ have at least one solution, with \mathbf{A} given by

$$\mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ 0 & -1 & 2 \\ 1/2 & 3 & -5/2 \end{bmatrix}$$

(b) Find a basis for the vector space spanned by the columns of \mathbf{A} .

5, 6, 7. Repeat #4 for the following matrices:

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

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

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