

# Problem Set 4

September 3, 2009

1. Find the determinant of each 3x3 matrix

(a)

$$\begin{bmatrix} 5 & 0 & 4 \\ 0 & 3 & 1 \\ 2 & 6 & 0 \end{bmatrix}$$

(b)

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

2. Consider the following system of equations:

$$6x_1 + 2x_2 - 3x_3 = 10 \quad (1)$$

$$2x_1 + 4x_2 + x_3 = 0 \quad (2)$$

$$x_1 - x_2 = 2 \quad (3)$$

$$(4)$$

Find the determinant of matrix A, which is the matrix of parameters.

3. Evaluate each determinant

(a)

$$\begin{bmatrix} 1 & 0.5 & 0.5 & 2 \\ 0 & 1 & 2 & 0 \\ -1 & 1 & 10 & 0 \\ 0 & 5 & 1 & -1 \end{bmatrix}$$

(b)

$$\begin{bmatrix} 2 & 7 & 0 & 1 \\ 0 & 0 & 9 & 0 \\ 5 & 7 & 4 & 6 \\ 1 & -2 & -1 & 0 \end{bmatrix}$$