

Homework #11, part 1
Due Wednesday, Nov. 23 in lecture.

Math 527, UNH fall 2011

For each problem,

- (a) Express the system of equations as a matrix equation $\mathbf{Ax} = \mathbf{b}$.
- (b) Compute the determinant of \mathbf{A} .
- (c) State how many solutions \mathbf{x} you expect to find, judging from the values of the determinant and \mathbf{b} .
- (d) Solve for \mathbf{x} using Gaussian elimination.
- (e) State how many solutions the system has.

Problem 1.

$$\begin{aligned}2x - y &= 8 \\6x - 5y &= 32\end{aligned}$$

Problem 2.

$$\begin{aligned}y + z &= 6 \\3x - y + z &= -7 \\x + y - 3z &= -13\end{aligned}$$

Problem 3.

$$\begin{aligned}x_1 + 4x_2 - 2x_3 &= 2 \\2x_1 + 7x_2 - x_3 &= -2 \\2x_1 + 9x_2 - 7x_3 &= 1\end{aligned}$$

Problem 4.

$$\begin{aligned}x_1 + 4x_2 - 2x_3 &= 2 \\2x_1 + 7x_2 - x_3 &= -2 \\2x_1 + 9x_2 - 7x_3 &= 10\end{aligned}$$