

Practice for 5.1 Matrices and systems of equations

The following problems will help you practice the material you learned today. Once you are finished check your solutions. Once done, you can work on your WeBWork homework.

1. Complete this augmented matrix in row-echelon form to put it in reduced row-echelon form (zeros in the upper triangle.) Notice the last column of the matrix will be the solutions to the original problem. Check the notes from the lecture to verify.

$$\left[\begin{array}{ccc|c} 1 & 0 & -3 & -2 \\ 0 & 1 & 7 & 11 \\ 0 & 0 & 1 & 2 \end{array} \right]$$

2. Write this system of equations as an augmented matrix and solve for x, y, z .

$$x + y - z = 0$$

$$2x - y = 4$$

$$-x - 2y + z = 2$$

3. When in row-echelon form one can detect systems which are dependent or inconsistent or have a unique solution. Solve each of these augmented matrices for (x, y, z) if possible. If not, state whether dependent or inconsistent.

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 6 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 0 & -5 \end{array} \right]$$

$$\left[\begin{array}{ccc|c} 1 & 4 & 7 & 10 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 3 & 3 \end{array} \right]$$

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & -2 \\ 0 & 1 & 7 & 7 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 6 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 0 \end{array} \right]$$