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Math 40
Methods for Solving Linear Systems
Friday, January 29, 2016

# 2.2.{12, 14, 26, 28, 30, 42}

**2.2.12** Use elementary row operations to reduce the given matrix to (a) row echelon form and (b) reduced row echelon form.

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

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**2.2.14**
Use elementary row operations to reduce the given matrix to (a) row echelon form and (b) reduced row echelon form.

$$\begin{bmatrix} -2 & -4 & 7 \\ -3 & -6 & 10 \\ 1 & 2 & -3 \end{bmatrix}$$

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**2.2.26** Solve the given system of equations using either Gaussian or Guass-Jordan elimination.

$$\begin{aligned} x - y + z &= 0 \\ -x + 3y + z &= 5 \\ 3x + y + 7z &= 2 \end{aligned}$$

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**2.2.28**
Solve the given system of equations using either Gaussian or Guass-Jordan elimination.

$$\begin{aligned} 2w + 3x - y + 4z &= 1 \\ 3w - x + z &= 1 \\ 3w - 4x + y - z &= 2 \end{aligned}$$

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**2.2.30**
Solve the given system of equations using either Gaussian or Guass-Jordan elimination.

$$\begin{aligned} -x_1 + 3x_2 - 2x_3 + 4x_4 &= 0 \\ 2x_1 - 6x_2 + x_3 - 2x_4 &= -3 \\ x_1 - 3x_2 + 4x_3 - 8x_4 &= 2 \end{aligned}$$

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**2.2.42**
For what value(s) of $k$, if any, will the systems have (a) no solution, (b) a unique solution, and (c) infinitely many solutions?

$$\begin{aligned} x - 2y + 3z &= 2 \\ x + y + z &= k \\ 2x - y + 4z &= k^2 \end{aligned}$$

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