

**Math 1300 Fall 2013**  
**Wednesday September 4 2013**  
**Exercises**

1. Use the Gauss-Jordan elimination method to find all solutions of the system of linear equations:

$$\left\{ \begin{array}{rclcl} 2x & + & 3y & = & 12 \\ 2x & - & 3y & = & 0 \\ 5x & - & y & = & 13 \end{array} \right\}$$

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2. Use the Gauss-Jordan elimination method to find all solutions of the system of linear equations:

$$\left\{ \begin{array}{rrrrrr} x & - & 3y & + & 2z & = & 10 \\ -x & + & 3y & - & z & = & -6 \\ -x & + & 3y & + & 2z & = & 6 \end{array} \right\}$$

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3. Use the Gauss-Jordan elimination method to find all solutions of the system of linear equations:

$$\left\{ \begin{array}{ccccccc} x & + & 2y & + & 3z & = & 4 \\ 5x & + & 6y & + & 7z & = & 8 \\ x & + & 2y & + & 3z & = & 5 \end{array} \right\}$$

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4. An office manager placed an order for computers, printers, and scanners. Each computer cost \$1000, each printer cost \$100, and each scanner cost \$400. She ordered 15 items for \$10,200. Give two different combinations for the numbers of each type of item that she could have purchased.

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5. A quilt shop receives an order for a patchwork quilt made from square patches of three types: solid green, solid blue, and floral. The quilt is to be 8 squares by 12 squares, and there must be 15 times as many solid squares as floral squares. If the shop charges \$3 per solid square, and \$5 per floral square, and if the customer wishes to spend exactly \$300, how many of each type of square may be used in the quilt?

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6. You are buying some house plants out of a selection of three types, that cost \$7, \$10 and \$13. If you have budgeted exactly \$150 for house plants, and you want exactly 15 of them, what are your options?

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7. For what value of  $k$  will the following system of linear equations have a solution?

$$\left\{ \begin{array}{rcl} 2x & + & 6y = 4 \\ x & + & 7y = 10 \\ kx & + & 8y = 4 \end{array} \right\}$$