

Homework #1 – M461 Fall 2010

3.1- 4 Find the point of intersection of the lines $x_1 - 5x_2 = 1$ and $3x_1 - 7x_2 = 5$.

3.1 - 10 The augmented matrix of a linear system has been reduced by row operations to the form shown below. Continue the appropriate row operations and describe the solution set of the original system

$$\left[\begin{array}{ccccc} 1 & -2 & 0 & 3 & -2 \\ 0 & 1 & 0 & -4 & 7 \\ 0 & 0 & 1 & 0 & 6 \\ 0 & 0 & 0 & 1 & -3 \end{array} \right]$$

3.1 - 14 Solve the system

$$\left\{ \begin{array}{rclcl} x_1 & - & 3x_2 & & = & 5 \\ -x_1 & + & x_2 & + & 5x_3 & = & 2 \\ & & x_2 & + & x_3 & = & 0 \end{array} \right.$$

3.1 - 16 Determine if the following system is consistent. Do not completely solve the system

$$\left\{ \begin{array}{rclcl} x_1 & & & - & 2x_4 & = & -3 \\ & 2x_2 & + & 2x_3 & & = & 0 \\ & & & x_3 & + & 3x_4 & = & 1 \\ -2x_1 & + & 3x_2 & + & 2x_3 & + & x_4 & = & 5 \end{array} \right.$$

3.1 - 21 Determine the value(s) of h such that the following matrix is the augmented matrix of a consistent linear system:

$$\left[\begin{array}{ccc} 1 & 3 & -2 \\ -4 & h & 8 \end{array} \right]$$