MAT 167 HW 1

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§ 1.4 2

- After reducing to a triangle system we have:
  $2x + 3y = 1$
  $\quad -6y = 6$
  So $y = -1$, back-substituting and solving for x we get
  $2x + 3(-1) = 1 \implies 2x - 3 = 1 \implies 2x = 4 \implies x = 2$.
  So we have $x = 2, y = -1$.
- We verify that

$$2\begin{bmatrix}2\\10\end{bmatrix} + (-1)\begin{bmatrix}3\\9\end{bmatrix} = \begin{bmatrix}4\\20\end{bmatrix} + \begin{bmatrix}-3\\-9\end{bmatrix} = \begin{bmatrix}1\\11\end{bmatrix}$$

- If the right hand side changed to $\begin{bmatrix}4\\44\end{bmatrix} = 4\begin{bmatrix}1\\11\end{bmatrix}$, then the x and y values increase accordingly.
  That is $x = 4(2) = 8, y = 4(-1) = -4$

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§ 1.5 11

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§ 1.6 2

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